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THE

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SPECIALLY DESIGNED AS A

Medium of Correspondence

AMONG THE

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ON LATIN ETYMOLOGY.

No. VI.

For the etymological inquirer, one of the most important duties is to study the laws of letter-change; and as these laws must be founded on the physical power of articulation, it is to be expected that the same phenomena present themselves in many languages. The Greek student, for example, finds a double orthography for many words which contain the letter *ρ*, as *κρατερος* and *καρτερος*, *θαρσος* and *θρασος*, &c. The same variety prevails in our own tongue. Thus, in Jennings's "Observations on the Dialects of Somersetshire," we find the words *great*, *pretty*, *brush*, *Christmas*, taking the forms *girt*, *pirty*, *birsch*, *Kirsmas*. This letter-change, so far not very surprising, becomes stranger when the initial letter of a word is affected by it. Thus the words *hirch*, *hird* (or *herd*), *hirn* (or *hurn*), *hirsh* (or *hursh*), to one whose ear is not familiar with the peculiarities of pronunciation which prevail in that part of England, are at first wholly unintelligible; yet they differ from words which represent them in the more polished language of our island by little more than the letter-change of which we have been speaking. Transfer the *r* before the vowel, and they are at once known as familiar friends, *rich*, *red*, *run*, *rush*. But although fashion, in these words, has given the preference to the forms which have the liquid as the initial letter, it would be hasty to assume that the Somersetshire variety is a corruption. A provincial dialect has as good a claim to be considered a language as the more favoured dialect, which has had the accidental privilege of being adopted as a standard. In the present instance, a claim to precedency in favour of *rich*, *red*, &c., over *hirch*, *hird*, &c., solely because they are the forms which prevail among the educated, would be traversed by the form *horse* of the ordinary language, where the aspirate precedes, whereas the corresponding variety, *ross*, is found in the German. On a full consideration of these double forms, we are strongly inclined to award the right of primogeniture to those which have a commencing aspirate. For example, the word *hirn* has a better claim than *run*, inasmuch as it represents the base *cur* of the Latin *curro*. The difference in the initial letters of *hirn* and *cur* is an example of a well-known law which subsists between the two languages, as in *canis* (*κυων κυν-ος*) *hound* (Germ. *hund*); *caput*, *head* (Germ. *haupt*); *calamus*, *haulm* (Germ. *halm*); *cannabis*, *hemp* (Germ. *hanf*), &c. A still more parallel case is that of the German *hirn* and the compound *ge-hirn*, "brain," compared with the first syllable of *cer-e-brum*. This German word *hirn* exists in our own island in the lowland Scotch, as in Walter Scott's novels, "he dashed out his harns." Moreover, we are justified in assigning the idea of brains to the first syllable of *cerebrum*, for in the older Latin writers the full word denotes, not the brain, but the vessel that holds the brain, the skull, as might be expected from the power of the suffix *brum*, which the word shares with *candela-brum*, &c. Thus, the passage in which Ennius practically expresses his meaning by the bold artifice of dividing the word: *cere comminuit brum*, "he broke his skull into a thousand pieces," becomes much more significant than it can be to those who see in the word *cerebrum* merely the soft contents. On the other hand, as regards the final letters *rn*, *hirn* stands to *cur* of *curro* precisely as *burn* to the syllable *bur*, as seen in *com-bur-o*, *am-bur-o*. But it may be objected that in these two compounds the *b* is merely an outgrowth from the preceding *m*, and that the more fitting division of the words would be *comb-uro*, *amb-uro*. It is enough, in reply, to point to the substantive *bustum*, "the place where bodies were burnt."* The example of a final *r*, lengthened into the form of *rn*, as in *hirn* compared to *cur*, is common between the two languages. Thus, *maere-o* is with us *mourn*. The *n* may possibly be a euphonic addition, or it may be a suffix, as in our own verbs, *hasten*, *open*, *listen*, *reckon*, from the monosyllabic verbs *haste*, *ope*, *list*, *reck*. Be this as it may, the change is seen in *sperno*, *cerno*, *sterno*, of the Latin, which have a second liquid, that is unknown to the forms of the perfect, *sprevi*, *crevi*, *stravi*. We repeat, then, that *hirn* is identical in origin with the Latin *curr-ere*. As the former is also identical with *run*, it follows that *cur* and *run* are of one stock, a statement which, put forward in a naked manner, without reasons, would only have excited ridicule.

But we must be prepared for other varieties of form in words which appear with an initial *r*. When such words are subjected to the metathesis which presents the *r* as the third instead of the initial letter, we shall often find not an *h* but an *s*, or a *w*, in possession of the first place. That an initial *s* and *h* should interchange between themselves is of course a familiar fact to the Greek scholar, as in ἕπτα, ἕξ, ἕπομαι, by the side of *septem*, *sex*, *sequor*. Hence no one doubts about the virtual identity of *rēpo*, *serpo*, and ἑρπω, the first owing its long vowel solely to the principle which lengthens the root-vowel in the imperfect tenses, so that *rep*, as pronounced in our *reptile*, must be considered to be the base of *rēpo*.

Again, ροφεω and *sorbeo* are known to be but one word, the φ and *b* maintaining that law of relation between the two languages which we have already seen in so many words; ομφαλο-, ονυχ-, ορφανο-, νεφελη, the aspirates of which appear in Latin as medials, *umbilicus*, *unguis*, *orbus*, *umbra* (see No. 47, p. 404.)

The Latin word *robur* having in the neuter suffix *ur* or *or (roboris)*, what is substantially the same as the *er* or *us* of *ub-er*, *gen-us*, *dec-us*, &c. directs us to make search for a verb as the base. But no such verb presents itself. If, pursuing the inquiry, we turn our thoughts to the English language, we must remember a law which exists between the two vocabularies, viz. that a *b* at the end of a syllable in a Latin word, especially if it has a preceding *r* or *l*, will probably take the form of a *d* in English (*t* in German). Thus *verbum* is our *word* (Germ. *wort*); *barba* our *beard* (Germ. *bart*); *curb-* of *cucurbita* our *gourd; creb-* or *celeb-*, of *creber*, *celeber*, our *crowd* and *curd; gleba* our *clod; sab-ulum* our *sand; rub* of *rubeo* our *red.* Hence *rob* of *robur* and the English *hard* may, as to form, be substantially one; for even the change of vowel is rather to be expected than not, as our tongue and the German have a love for the vowel *a*, where the Latin prefers an *o* or *u*, as seen in *domare, longus, nox, unguis (onugui), umbo (o-nub-on)*, compared to *tame, zähmen, lang, nacht, nagel* or *nail*, *nabel* or *navel*, &c. We next turn to the Greek vocabulary, and at once come across *ρων-νυμι*, in which the first *ν* is commonly treated with utter disregard, as also is the *σ* in the derivatives *ρωσ-τηρ, ρωσ-τικος*. Such letters are precisely what we should expect a *δ* to become in such positions, and certainly the notion of to *harden*, is precisely that which in a perfect participle *ἐρρωμενος* would signify "hardened," "strong," "stout." Thus *rob* of *robur*, and *ρωδ* of *ρωννυμι* correspond to our own monosyllable *hard*, with the meaning of a verb "harden." Of course we consider the sense "hardness" as entitled to precedence over that of "oak" in the Latin *robur.*

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* Similarly in *am-bed-o*, *am-bi-o*, it will be found, on a careful examination, that the *b* is an original letter of the verbs. We mention this, lest it should be supposed that these words have been forgotten; but it would take too much space to prove the assertion here.

The Greek words *ρημα, ρησις, ρητωρ*, are referred to a supposed verb *ρε-ω* or *ερ-ω*. Now the Latin word which most nearly represents in power the Greek word *ρημα* is *verbum*, and this of course is our own *word*, or German *wort*. But we have also in our own tongue the verb *read* or *rede*, or in German *red-en*. The fact that our verb *rede* in the old language is used in the sense of speaking is a proof that it is identical with the German *red-en* "to speak;" but even without this fact, a change of meaning precisely similar in the Latin *lego*, "I read," as compared with the Greek λεγω "I speak," would have removed all doubt. Thus the German *red* of *reden* connects in form as well as meaning the Latin *verb-um* and the Greek *ρε-ω*.

This Latin substantive *verbum* reminds one by its shape of the substantive *verber*, where we must divide the parts etymologically by inserting a hyphen after the *b;* and we find the first element of the word in our English "rod," the *b*, as usual in such position, taking the sound of a *d.* The Greek also has the root, and seems, as it were, to hesitate between the two consonants *b* and *d* in the noun *ραβδος*. This substantive we find is referred to *ρασσω*, "I strike," so that we are brought as usual to a verb for the ultimate word. It may be noticed also that the Latin *rad-ius*, "a rod," is probably of the same stock.

The Latin *rad-ix*, as regards the first syllable, and our *root*, are, of course, the same word; but here also we find the *r* reduced to the third place in the variety, *wort*, applied by us to so many low plants, and in the German, *wurz-el.*

Rota and *rotundus** of the Latin may now, without hesitation, be put down as equivalent to such words as *vort-a, vort-undus;* and so connected directly with the verb *vort-o*, better known as *vert-o*, "I turn." So in English the verbs, *roll* and *whirl*, are but varied forms of the same word. We do not hesitate, however, to treat *verto* and *whirl* as older forms than those which begin with an *r*; and this for two reasons, first, because the loss of an initial digamma is more easy to conceive than the acquisition of one by a word not originally entitled to it. Secondly, of *ver-t* and *whir-l*, the first element *whir* (for the Latin *v* was pronounced, in all probability, as a *w*) gives us precisely the noise which is made by a rapid revolution in the air, and thus we have a natural explanation of the origin of the words.

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* See No. 46, p. 359.

The Greek words ρεζω (ερεξα) εργον, or rather Fεργον, have been long known to have the same origin as our *work*, *wrought*, *wright*, &c. The Latin verb, *ex-erce-re*, has been justly explained as a kindred word, with the sense of to work out, work thoroughly. Those who would connect it with the Latin verb *arcere*, will have a difficulty in reconciling the two meanings.

Sarcire is a verb which seems to blend together the fourth and third conjugations, for the *i* is not visible in the perfect tenses, or in the substantive *sartor*. As a Greek π is regularly represented by a Latin *c* or *q*, for example, in πεπτω and *coquo*, πεμπτος and *quintus* (old form *quinctus*), we have no difficulty in treating *sarc* of *sarcire*, and ραπ or ραφ of ραπτειν as equivalents.

So again the Greek ρεπ-ειν, and *verg-ere*, both signifying "to incline," would present no difficulty if we found a *c*, instead of a *g* at the end of the Latin *verg*; and this difficulty is not sufficient to prevent our believing in the identity of the two roots. Indeed, the *g* in *vergere* is not an original letter of the word. This assertion is founded on a consideration of the words *terg-ere*, *sparg-ere*, *merg-ere*. In *ter-g-*, "wipe," we have evidently only a diminutive of *ter*, "rub." A comparison of *sparg-* with the Greek σπειρειν, whose base is σπερ, shows that the *g* in the former word is no fundamental part of it; and, lastly, *merg-*, we would connect with the substantive *mari-* (nom. *mare*). That this word *mari* originally denoted "water" alone, and not exclusively "salt water," is proved partly by our having the same root in the words *meer* and *marsh*, and partly by the fact that it is only a variety of the Sanscrit word *vari*, "water." Indeed the *g* in the four words *terg-*,* *sparg-*, *merg-*, *verg-*, performs precisely the same office as the *k* in our own verbs, *hark*, *talk*, *pluck*, *walk*, which are but diminutives of *hear*, *tell*, *pull*, and an obsolete verb, *wal* or *wall*, which, though no longer found in our language, still survives in the German verb *wallen*, "to go," as in the Psalm xlii. v. 4, "Ich wollte *wallen* zum hause Gottes"—I would *go* to the house of God. And not only do the *g* and *k* in these two series of words perform the same office; but what difference there is between the two letters (both being gutturals) is agreeable to the well-known law of the German scholar Grimm, that a *g* in Latin and a *k* in the Teutonic languages should correspond, as in *genu*, *gnosco*, *gleba*, compared to *knee*, *know*, *clod*. Thus *verg-*, "incline," seems to be only a derivative from that very fruitful root, *ver*, "turn," whence come *ver-t-*, "turn," *ver-u*, "a spit," &c.

The Greek ριπτω seems not to have a correlative in Latin, but that the claim of ρ to the initial place is open to dispute, appears from the

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* This view is not put forward now for the first time. It was given a short time back in the Transactions of the Philological Society.

German *werf-en* "to throw," for the π of ριπτω and the *f* of *werfen* stand to each other in the usual relation, as seen in *pluma, flaum*; *piscis, fisch*; *pro, für*, &c.

The Greek ἁρπ-αζειν and Latin *rap-ere* were mentioned in the last paper.

That the Latin *ruga* is connected with the Greek verbs ρυομαι, ερυω, "I draw," is proved by the fact that these Greek verbs have derivatives ρυσος, *wrinkled*; ρυτις, *a wrinkle*. On the other hand our own words *aruck*, *wrinkle*, and *rumple* (or as pronounced in Somersetshire *wrumple*), also claim kin with *ruga*. Thus an initial *w* may fairly be claimed for the word on the evidence of its English representatives; but the Greek ερυω also is admitted to belong to the words which in the Homeric poems had at times a digamma. Thus ερυ of ερυω is only a reduced form of a fuller word Ϝερ-υχ or something like it. We add the χ partly because a χ should correspond to the *g* of *ruga*, and partly because the loss of a final consonant seems implied in the derivatives ρυσ-μος, ρυσ-της. Now Ϝερ-υχ- like Ϝελ-κ-(ελκω), which also signifies "draw," is but a derivative from a root Ϝελ, or, as the Latin language has it, *vell-ere*, "to pull."

The substantives *lupus* and λυκος are of course but varieties of each other, but they stand in direct opposition to that law which has been mentioned above, inasmuch as the Latin, rather than the Greek, should have had the guttural. The explanation of this difficulty lies probably in the fact, that the names given to the wild animal (as might fairly be expected) agree with the country dialects rather than the city pronunciation. Thus a π in Athens was habitually changed to a κ in the Ionic dialect of the country around Athens, as in πον, ποτε, ποτερος, changed to κου, κοτε, κοτερος. Conversely among the Romans, though the sound of *c* or *q* was in favour within the walls, that guttural was at once converted into a labial in the mouth of the Oscan population around. Thus *quicquid* became *pitpit*, and while *columba* was the tame pigeon, *palumbes* was the wild bird. But to return to the words *lupus*, λυκος, these evidently are represented in our own tongue, both in sense and sound, by the word *wolf*, or, as the Danish has it, *ulv*. Nay, the Latin *vulpes* is probably the same word, for the wolf and the fox have so much in common, that the same name was likely to have been given to both. Thus we have the letter *l* undergoing the same metamorphosis that we have seen so repeatedly affecting the liquid *r*.

We will conclude this discussion with two remarks: first, a statement that the Latin substantive *re-*, "thing," and the Greek verb ρε-, "flow," have suffered from the same change; but as the consideration of these words involves much previous inquiry, we must postpone it. Secondly, we would ask Greek scholars whether ραψῳδος is really connected with ραπτειν, "to sew." The authority of the ancients in a question of etymology is of very little weight, and we know that in many cases a false historical statement was often manufactured in support of a false derivation. Did not the word rather denote, like κιθαρῳδος, &c., a player on a musical instrument? The names of musical instruments are numerous and ever changing, but have we not in the commencing letters of ραψῳδος a Greek equivalent for our word *harp*?

CLAUDIUS.

PRACTICAL HINTS FOR THE SCHOOLROOM.

GROUPING OF FACTS.

The rearing or training of the human mind is similar in many respects to the erection of an ordinary building. In either case there must be an architect with definite plans, proper materials duly prepared, and skilful workmen to arrange and adapt them.

Not to dwell on other points of resemblance which will furnish matters for future consideration, it is an essential and universal principle in building to blend one part of the work with another, and not to leave it in detached pieces. The timbers are all connected with each other and with the brick-work, and the bricks themselves have all a bond of union. And this principle must be carried out in mental work. To convey instruction or to make facts stick, to make them lasting and impressive, there must be a cement to bind them; they must be in some way connected, and not isolated facts. Now interest blended with instruction is a species of cement. But there is another method, novel and very amusing, which will be found extremely serviceable. Instead of giving facts singly, they may be grouped together. And when a number of groups have been committed to memory, each fact in the group may be taken singly, and analyzed and explained. By this means the memory gains strength, and the teacher has some useful materials to operate upon in his mental structure.

This plan answers admirably in all cases and with all subjects. It is like administering a powder in a jelly; the most unpalatable parts of instruction, which are often the most important, are rendered attractive in this way. With a retentive memory, quick perceptive faculties, and the power to compare and investigate, a foundation is laid for the highest and noblest operations of the mind, for intellectual and moral reflection, a sound judgment in all things, a well regulated will, and a refined and cultivated imagination.

The following groups, which contain a variety of the most important facts in history, may serve as a specimen of their kind. But they are merely a specimen, and may be continued almost indefinitely. The facility with which this body of instruction is committed to memory almost exceeds the bounds of credibility. Children of very ordinary intellects readily catch a few groups of facts; if they can write, they might transcribe them in a note book, as a dictation lesson, and they might also from time to time enlarge their stock by their own discoveries.

As a commencement, you may take the number seven; this is undoubtedly the most fertile field of inquiry. Children might be informed that there is something peculiar about the number seven; that it has become proverbial as a mystic number; that it consists of two combinations, a △ triangle and a □ square (3 + 4), which have also an air of mystery about them. Further, that the product of these numbers (3 × 4 = 12) maintains the same character,—that twelve denotes perfection or completion. And that ten (3 + 7) will come under the same rule. And lastly, they might be informed that of old the Deity was said by the heathen to delight in uneven numbers ("Numero Deus impari gaudet."—Virgil), which will bring in the number five with all its multiples.

GROUPS OF SEVENS.

Scripture Facts.

1. The seven days of the creation. ———— of the week.	*I. Light. II. Firmament, or sky. III. Separation of land and water with plants and flowers. IV. Sun, moon, and stars. V. Fish and fowl. VI. Beast and man. VII. Rest.*
2. Seven clean beasts received into the ark.	*Gen. Chap. VII. v.* 2.
3. Seven nations of the land of Canaan.	*I. Canaanites. II. Hittites. III. Perizzites. IV. Hivites. V. Amorites. VI. Girgashites. VII. Jebusites.*
4. Seven years of plenty and famine in Egypt.	*Gen. Chap. XLI.*
5. The seventh was the sabbatical year with the Jews.	*Levit. Chap. XXV.*
6. After the seven-seventh or fiftieth year was the grand jubilee.	*Ditto.*
7. Seven great sins of Israel in the wilderness, with corresponding punishments.	*I. Golden calf. II. Complained of manna. III. Spies' report. IV. Rebellion of Korah. V. Murmured on account of the way, and for better food. VI. Whoredom. VII. Idolatry.*
8. Seven priests, with seven trumpets and all Israel following, surrounded Jericho seven days, and seven times on the seventh day; then they blew seven blasts and the walls lay prostrate.	*Josh. Chap. VI.*
9. Naaman was ordered to dip seven times in Jordan for his cure.	2 *Kings, Chap. V. v.* 10.
10. The seven great prophets of Judah.	*I. Isaiah. II. Jeremiah. III. Ezekiel. IV. Daniel. V. Haggai. VI. Zechariah. VII. Malachi.*
11. Seven last sayings of our Saviour.	*I. Father, forgive them. II. This day shalt thou be with me in paradise. III. Woman, behold thy Son! IV. Eli! Eli! V. I thirst. VI. It is finished. VII. Father, into thy hands.*
12. Seven hours of prayer.	*Psalm CXIX. v.* 164.
13. Seven churches of Asia, with their seven angels or bishops, and the seven spirits of God.	*I. Ephesus. II. Smyrna. III. Pergamos. IV. Thyatira. V. Sardis. VI. Philadelphia. VII. Laodicea.*
14. Twice seven epistles of St. Paul.	*See New Testament.*
15. The seven general epistles of the New Testament.	*Two of St. Peter. Three of St. John. One of St. James. One of St. Jude.*

Facts Ecclesiastical.

16. Seven penitential psalms.	*Psa. VI.; XXXII.; XXXVIII.; LI.; CII.; CXXX.; CXLIII.*
17. Seven deacons first appointed.	*See Acts, Chap. VI.*
18. Seven loaves fed 4000. Five loaves and two fishes (seven in all) fed 5000.	*St. Matthew, Chap. XVI. v.* 9, 10.
19. Seven corporal works of mercy.	*I. To feed the hungry. II. Give drink to the thirsty. III. To harbour the homeless. IV. To clothe the naked. V. To visit the sick, and those in prison. VI. To redeem the captives. VII. To bury the dead.*
20. Seven spiritual works of mercy.	*I. To teach the ignorant. II. To correct the sinner. III. To counsel the doubtful. IV. To comfort the afflicted. V. To bear injuries patiently. VI. To pardon offences. VII. To pray for our persecutors.*
21. Seven deadly sins.	*I. Pride. II. Covetousness. III. Lust. IV. Gluttony. V. Anger. VI. Envy. VII. Sloth.*
22. Seven gifts of the Spirit.	(*See Confirmation service.*) *I. Wisdom. II. Understanding. III. Counsel. IV. Fortitude. V. Knowledge. VI. Piety. VII. Fear of God.*
23. Seven names of the Holy Land.	*I. Canaan. II. Palestine. III. Promised Land. IV. Land of Israel and Judah. V. Judæa. VI. Holy Land. VII. Syria.*
24. Seven times ten (or 70) souls came out of Egypt. Seven times ten (or 70) elders composed the Jewish Sanhedrim.	*See Exodus, Chap. I. v.* 5; *Chap. XXIV. v.* 1; *Numbers, Chap. XI. v.* 24, 25.
25. Seven times ten (or 70) commissioned by our Lord to preach the Gospel.	*St. Luke, Chap. X. v.* 1.
26. Seven times ten (or 70) weeks, the famous prophecy of Daniel.	*Daniel, Chap. IX. v.* 2, 24.
27. Seven times ten (or 70) years, the period of the Jewish captivity.	*Jeremiah, Chap. XXV. v.* 11, 12.
28. Seven times ten (or 70) years, the term of human life.	*Psalm XC. v.* 10.

Facts General.

29. Seven kingdoms of the Saxon Heptarchy.	*I. Kent. II. Sussex. III. Wessex. IV. East Anglia. V. Essex. VI. Mercia. VII. Northumbria.*
30. Seven great climates or regions of the earth.	*I. Polar. II. Frozen. III. Cold. IV. Temperate. V. Warm. VI. Tropical. VII. Equatorial.*

31. Seven fundamental sounds in music.	*I. Do. II. Re. III. Mi. IV. Fa. V. Sol. VI. La. VII. Si.; or I. C. II. D. III. E. IV. F. V. G. VI. A. VII. B.*
32. Seven prismatic colours.	*I. Red. II. Orange. III. Yellow. IV. Green. V. Blue. VI. Indigo. VII. Violet.*
33. The seven sciences.	*I. Grammar. II. Rhetoric. III. Logic. IV. Arithmetic. V. Geometry. VI. Astronomy. VII. Music.*
34. Seven greater planets.	*I. Mercury. II. Venus. III. Earth. IV. Mars. V. Jupiter. VI. Saturn. VII. Uranus, or Herschel.*
35. Seven wonders of the world.	*I. Pyramids of Egypt. II. Palace of Cyrus. III. Tomb of Mausolus, King of Caria. IV. Statue of Jupiter at Olympia. V. Colossus of Rhodes. VI. Temple of Diana at Ephesus. VII. Walls and Hanging Gardens of Babylon.*
36. Seven Kings of Rome.	*I. Romulus. II. Numa Pompilius. III. Tullus Hostilius. IV. Ancus Martius. V. Lucius Tarquinius Priscus. VI. Servius Tullius. VII. Tarquinius Superbus.*
37. Seven wise men of Greece.	*I. Bias. II. Chilo. III. Cleobulus. IV. Periander. V. Pittacus. VI. Solon. VII. Thales.*
38. Seven hills of Rome.	*I. Palatine. II. Capitoline. III. Aventine. IV. Esquiline. V. Cœlian. VI. Quirinal. VII. Viminal.*

SEVEN CONSISTS OF 3 AND 4; *i.e*, △ □.

Groups of Three.

1. The Ever Blessed Trinity.	
2. Three orders of ministers (Jewish).	*High Priest. Priests. Levites.*
3. Three orders of ministers (Christian).	*Bishops. Priests. Deacons.*
4. Three Great Jewish Feasts.	*Passover (in Spring). Pentecost (in Summer). Tabernacles (in Autumn).*
5. Three favoured Apostles.	*Peter. James. John.*
6. Three Christian virtues.	*I. Faith. II. Hope. III. Charity.*
7. Three creeds of the Church.	*I. Apostles'. II. Nicene. III. Athanasian.*
8. Three years—the term of our Lord's ministry.	
9. Three days was He in the heart of the earth.	
10. Three times was a voice heard from heaven during His ministry.	

11. Three times was He denied.	*St. Luke, Chap. XXII. v.* 61.
12. Three times did the devil tempt Him.	*St. Matthew, Chap. IV.*
13. Three crosses used at His crucifixion.	*St. Mark, Chap. XV. v.* 27.
14. Three great enemies of man.	*I. Devil. II. World. III. Flesh.*
15. Three arks mentioned in the Bible.	*I. Noah's ark. II. Ark of covenant. III. Ark of bulrushes.*
16. Threefold division of man.	*I. Body. II. Soul. III. Spirit.*
17. Three sons of Adam.	*I. Cain. II. Abel. III. Seth.*
——— of Noah (a second Adam).	*I. Shem. II. Ham. III. Japheth.*
18. Three kinds of laws among the Jews.	*I. Moral. II. Ceremonial. III. Judicial.*
19. Three things in the ark of the covenant.	*I. Aaron's Rod. II. Pot of manna. III. Two tables of covenant.*
20. Twice three cities of refuge in Canaan.	*I. Kedesh (Naptali). II. Shechem (Ephraim). III. Hebron.*
	I. Bezer. II. Ramoth (Gilead). III. Golan (Bashan).
21. Three kings of England, IIIrds. reigned longest.	*Henry III. Edward III. George III.*
22. Three European empires.	*Russia. Austria. Turkey.*

Grammar.

23. Three divisions of time.	*Past. Present. Future.*
Three subdivisions of time.	
24. Three degrees of comparison.	*Positive. Comparative. Superlative.*
25. Three kinds of pronouns.	*Personal. Relative. Adjective.*
26. Three kinds of verbs.	*Active. Passive. Neuter.*
" "	*Regular. Irregular. Defective.*
27. Three kinds of adverbs.	*Of Time. Place. Manner.*

Heathen.

28. Three graces.	*Aglaia. Euphrosyne. Thalia.*
29. Three fates.	*Clotho. Lachesis. Atropos.*
30. Three furies.	*Alecto. Megæra. Tisiphone.*
31. Three judges of hell.	*Minos. Rhadamanthus. Æacus.*
32. Three times three muses.	
33. Three Punic wars.	
34. Two triumvirates of three.	*I. Julius Cæsar. Pompey. Crassus.* *II. Octavius. Mark Antony. Lepidus.*
35. Threefold division of the Old Testament.	*I. Law. II. Prophets. III. Psalms.*
36. Threefold division of the New Testament.	*I. Historical. II. Doctrinal. III. Prophetical Books.*

GROUPS OF FOURS.

1. Four rivers in Eden.	*I. Pison. II. Gihon. III. Hiddekel. IV. Euphrates.*
2. Four Gospels and Evangelists.	*I. Matthew. II. Mark. III. Luke. IV. John.*
3. Four poetical books.	*I. Job. II. Psalms. III. Proverbs. IV. Canticles.*

4. Four greater prophets.	*I. Isaiah. II. Jeremiah. III. Ezekiel. IV. Daniel.*
5. Four cardinal virtues.	*I. Prudence. II. Temperance. III Justice. IV. Fortitude.*
6. Four last things.	*I. Death. II. Judgment. III. Heaven. IV. Hell.*
7. Four cardinal points.	*East. West. North. South.*
8. Four principal elements.	*Earth. Air. Fire. Water.*
9. Four hills of Jerusalem.	
10. Four seasons of the year.	*I. Spring. II. Summer. III. Autumn. IV. Winter.*
11. Four fundamental rules in Arithmetic.	*I. Addition. II. Subtraction. III. Multiplication. IV. Division.*
12. Four parts of grammar.	*I. Orthography. II. Etymology. III. Syntax. IV. Prosody.*
13. Four kinds of government of Rome.	*I. Regal. II. Consular. III. Imperial. IV. Papal.*

GROUPS OF TWELVES.

1. Twelve tribes of Israel.
2. Twelve minor prophets.
3. Twice twelve courses of the priests.
4. Twelve Apostles.
5. Twelve Cæsars.
6. Twelve legions of angels.
7. Twelve months in the year.
8. Twelve signs of the zodiac.
9. Twelve labours of Hercules.
10. Twelve counties of Wales.

GROUPS OF FIVE AND FORTY.

1. Five books of Moses called Pentateuch.	*I. Genesis. II. Exodus. III. Leviticus. IV. Numbers. V. Deuteronomy.*
2. Twice five plagues of Egypt.	*I. Water turned into blood. II. Frogs. III. Lice. IV. Flies. V. Murrain of beasts. VI. Boils and blains. VII. Hail. VIII. Locusts. IX. Darkness. X. Death of firstborn.*
3. Five things holy among the Jews.	*I. Holy persons. II. Holy places. III. Holy things. IV. Holy times. V. Holy actions.*
4. Five cities and lords of the Philistines.	*I. Gaza. II. Gath. III. Ekron. IV. Ashdod. V. Askelon.*
5. Five things in the first temple wanting in the second.	*I. Ark of covenant. II. Bath Col, or voice from heaven. III. Holy fire on the altar. IV. Urim and Thummin. V. Gift of prophecy.*
6. Five famous patriarchates in the early Church.	*I. Jerusalem. II. Antioch. III. Rome. IV. Constantinople. V. Alexandria.*
7. Five great empires.	*I. Babylonian or Assyrian. II. Medo-Persian. III. Macedo-Grecian. IV. Roman. V. Christian.*
8. Five great powers of Europe.	*I. Great Britain. II. France. III. Austria. IV. Russia. V. Prussia.*
9. Five great divisions of the world.	*I. Europe. II. Asia. III. Africa. IV. America. V. Australasia.*

10. Five great subdivisions of land.	*I. Continents. II. Islands. III. Peninsulas. IV. Isthmuses. V. Capes or Promontories.*
11. Five great divisions of water.	*I. Atlantic Ocean. II. Pacific. III. Indian. IV. Northern. V. Southern.*
Five great subdivisions of water.	*I. Seas. II. Lakes. III. Gulfs or Bays. IV. Straits. V. Rivers.*
12. Five zones or belts round the earth.	*I. II. Two Frigid. III. IV. Two Temperate. V. One Torrid.*
13. Five races and colours of men.	*I. Caucasian or European (White). II. Mongolian or Asiatic (Yellow or Olive). III. Ethiopic or African (Black). IV. Native American (Red or Copper-coloured). V. Malay (Brown or Tawny).*
14. Five great mountain ranges of Europe.	*I. Alps. II. Apennines. III. Pyrenees. IV. Dofrefeld. V. Balkan.*
15. Five senses of man.	*I. Hearing. II. Seeing. III. Feeling. IV. Smelling. V. Tasting.*

GROUPS OF FORTY.

16. Five times eight or forty days' rain at the time of the deluge.
17. Five times eight or forty years' wandering of Israel in the desert.
18. Twice five times eight or two periods of forty days each was Moses in Mount Sinai.
19. Thrice five times eight or thrice forty years the length of Moses' life. Forty years was he in Egypt; forty years with Jethro's flock; forty years in the wilderness with Israel.
20. Five times eight or forty years the reign of Saul.
21. Five times eight or forty years the reign of David.
22. Five times eight or forty years the reign of Solomon.
23. Five times eight or forty days was given to the Ninevites for repentance.
24. Five times eight or forty days Elijah fasted.
25. Five times eight or forty days our blessed Lord fasted.
26. Five times eight or forty days of Lent, the Church's yearly fast.
27. Five times eight or forty days was our Lord on earth after his resurrection.
28. Five times eight or forty counties of England.

SPECIMENS OF PARSING AND PARAPHRASING.

No. XVII.

THE following questions form sections 3 and 4, of the paper on "The English Language," proposed at the recent general examination of Male Training Schools :—

1. Correct the following passage, and parse it—

The sun upon the calmest sea,
Appears not half so bright as thee.

2. Write a paraphrase of the following passage, and parse the words printed in italics. To what three poets does it refer?

Three *poets,* in three distant ages *born,*
Greece, Italy, and *England* did adorn:
The first in loftiness of thought *surpassed;*
The *next* in majesty; in both the *last:*
The force of Nature could no farther go;
To make a *third,* she joined the other two. (*Dryden.*)

3. Paraphrase one of the following passages—

Heaven may not grant thee all thy mind;
Yet say not thou that Heaven's unkind
God is alike both good and wise
In what he grants and what denies.
Perhaps what goodness gives to-day
To-morrow goodness takes away. (*Cotton.*)

Why sleeps the future, as a snake enrolled,
Coil within coil, at noontide? For the WORD
Yields, if with unpresumptuous faith explored,
Power at whose touch the sluggard shall unfold
His drowsy rings. Look forth!—that Stream behold
THAT STREAM upon whose bosom we have passed
Floating at ease, whilst nations have effaced
Nations, and Death has gathered to his fold
Long lines of mighty Kings—look forth, my soul!
(Nor in this vision be thou slow to trust,)
The living Waters, less and less by guilt
Stained and polluted, brighten as they roll,
Till they have reached the Eternal City—built
For the perfected Spirits of the just!
(*Wordsworth's Eccl* *nnets.*)

ANSWERS.

1. The sun upon the calmest sea,
Appears not half so bright as thou.

The, def. art. defining *sun.*

Sun, com. noun, sing., neut., nomin. to *appears.*

Upon, prepos. expressing relation between *sun* and *sea.*

The, def. art. defining *sea.*

Calmest, adj. superl. deg., qualif. *sea.*

Appears, reg. verb, neut., indic. pres. third pers. sing. agreeing with its nominative *sun.*

Not, adv. modif. *half.*

Half, noun used adverbially, modif. *so bright,* and abridged from the phrase *by half.*

So, adv. modif. *bright.*

Bright, adj. qualif. *sun.*

As, conj. connecting *sun appears* and *thou* (*appearest*).

Thou, pers. pron. nomin. to *art* or *appearest* understood.

2. Parsing of the passage from Dryden.

Poets, noun, nomin. to *did,* or *did adorn.*

Born, perf. partic. pass. of the verb *bear*, used, instead of *borne*, as an adjective describing *poets*.

England, prop. noun. obj. gov. by trans. verb *adorn*.

Surpassed, reg. verb, intrans., past indic., in concord with its nomin. *poet*, which the adjective *first* qualifies, by implication.

Next, adj., superl. of *nigh*, defining *poet* implied.

Last, adj., superl. of *late*, defining *poet*.

To make, irreg. verb, infin. gov. *poet* understood. The sense of this expression being *that she might make*, we have here an instance of the infinitive sign *to* being used as a connective between clauses. (*See* Hunter's Grammar, *Supp. Synt.* Ch. 13, § 5.) An examination, however, of the expression *she joined to make* will evince the really prepositional character of the word *to* in the infinitive mode; and instead of saying, as some grammarians would, that *to make* is governed by *joined*, we should say, in strictness, that *to* expresses relation between *joined* and *make*. (*See* Hunter's Gramm. *Elem. Synt.* Ch. 6, § 1; and *Supp. Synt.* Ch. 9, § 1.)

Third, adj. defining *poet* understood.

Paraphrase of the Passage from Dryden.

Three poets, born at periods widely remote from each other, conferred lustre upon Greece, Italy and England, respectively. The first of these excelled in loftiness of thought; the next was unrivalled in majesty of style; and the last was pre-eminent in the union of loftiness and majesty: for Nature's energy being unable to produce a poet of loftier genius than *Homer's*, or of a spirit more majestic than *Virgil's*, she gave to the world a third poet, by uniting in *Milton* the excellences of the former two.

Paraphrase of the Passage from Cotton.

Heaven may not grant thee all that thou wishest; yet do not, on that account, consider Heaven to be unkind. God is equally wise and good, both in giving and in withholding. And it may happen that something which God in His goodness bestows upon us one day, may, in the exercise of the same goodness, be withdrawn by Him the next.

Paraphrase of the Passage from Wordsworth.

Why, in this age of religious light, do we realize so little of the future, suffering it to lie unstirred, like a snake coiled together and asleep at noonday? For the Word of Divine Revelation, if examined in a spirit of cautious and reverential faith, imparts ability to "discern the signs of the times," and to make the slumbering future unfold its coils. Look forth, my soul, and behold that Stream of Sacred Truth, by which we, as a community, have been sustained and carried onward in safety, while nations have been supplanted by nations, and Death has gathered to the grave long lines of powerful princes,—look forth upon the future course of that Stream, and be not slow to admit the truth of the vision which faith presents to thee. Behold! the waters of spiritual life, gradually less stained and corrupted by human abuses and impurities, become more and more bright as they roll through time, until they have reached that Eternal City which God has prepared for the "Spirits of the just made perfect!"

GENERAL EXAMINATION OF TRAINING SCHOOLS.

CHRISTMAS, 1850.*

GEOGRAPHY AND POPULAR ASTRONOMY.

Three Hours allowed for each Paper.

SECTION I.—1. Where are the following capes and headlands situated:—Flamborough Head, Beachy Head, the Lizard Point, the Naze, Cape Finisterre, Cape Verde, Cape Guardafui?

2. Describe the course of the river Trent.

3. Describe geographically the situations of Bohemia, Transylvania, the Carnatic, Great Bucharia, Guatamala, Massachusetts.

SECTION II.—1. Draw a map of the Holy Land.

2. Draw a map of Great Britain.

3. Draw a chart of the Baltic Sea; showing the countries on its shores, the rivers which flow into it, and the sea-port towns.

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* In order to limit as little as possible the opportunities by which peculiar talents may be exhibited, it is not perhaps desirable to prescribe which of the Subjects of Examination the Candidates for Queen's Scholarships shall be at liberty to select, further than *to state strongly their Lordships' opinion that they should not attempt answers upon all the Subjects.*

The following Subjects must not be wholly omitted by any Candidate, viz.

1.—The Holy Scriptures, the Catechism, and the Liturgy of the Church of England (in Schools connected with the Church of England).
2.—English History.
3.—Geography.
4.—Arithmetic (including Vulgar Fractions and Decimals).
5.—English Grammar and Composition.
6.—The Notes of a Lesson, or some observations on the Practical Duties of a Teacher.

A Candidate who answers in *these Subjects* really well, may obtain an Exhibition of £20 for one year.

A Candidate who answers in the foregoing Subjects really well, *and also in one other Subject*, really well (to be selected by himself out of those proposed to the Candidates for Certificates of Merit, but with a preference on the part of my Lords for the three First Books of Euclid) may obtain an Exhibition of £25 for one year.

If a Candidate attempts a greater number of Subjects, he will do so on his own responsibility. My Lords could not but be happy to find that he was able to answer in a greater number of Subjects well: but the extent of the Subjects attempted will not be accepted in lieu of mastery over those which are indispensable.

Candidates for Queen's Scholarships in FEMALE *Training Schools will not be required to answer questions in Vulgar Fractions or Decimals. For the higher Exhibitions, they will be at liberty to select one of the Subjects proposed to Female Candidates for Certificates of Merit, such as Book-keeping, Biographical Memoirs, or Domestic Economy. Their Lordships would prefer a knowledge of some good Manual upon the last-named Subject, in connection with which they will be prepared to give due weight to Certificates from the Managers of the Candidate's School, attesting her practical knowledge of household duties.*

The Exhibitions awarded to Females will be at the rate of two-thirds of those awarded to Males, viz.: £13 6s. 8d., and £16 13s. 4d., instead of £20 and £25, to correspond with the different expense of boarding in Training Schools, for Males and Females respectively.

The first question in each Section has been framed more especially with Reference to Candidates for Queen's Scholarships.

Every Candidate will further be required to instruct a Class in the presence of the Inspector; to read intelligently, with good articulation and pronunciation; to write a fair hand; and to spell correctly.

SECTION III.—Give a short account of the geography of one of the following countries:—1. Ireland. 2. Portugal. 3. British India.

SECTION IV.—1. Explain fully the terms degree, longitude, latitude, tropic, arctic circle, archipelago, antipodes, zenith, nadir.

2. Explain fully the terms watershed, isothermal line, snow line, and give examples of their application.

3. If in latitude 45° I travel 1000 miles due east, by how many degrees shall I have changed my longitude?

SECTION V.—1. Describe the course of a ship from Liverpool to Sidney and back. Why would it sail eastward?

2. Why are the largest rivers the widest? How may the highest lands of any region be determined on the map from the courses of its rivers? Give examples of this from the map of England.

3. What would be the prevalent currents of the atmosphere and ocean if the earth were at rest? What change would be produced in them by the diurnal motion of the earth if there were no annual motion? What effects result from the annual in addition to the diurnal motion?

SECTION VI.—1. Explain the means by which the longitude of a place is determined by the chronometer, and the latitude by a meridian altitude of the sun.

2. On what causes does the difference between true solar and mean solar time depend?

SECTION VII.—1. How is it known that the fixed stars are greatly more distant from us than the sun and planets?

2. Describe the apparent diurnal motion of the stars to an observer at the equator, and at the poles.

3. Describe the phases of the moon in her first and third quarters, and explain them. Why does the time of high water at any place vary daily? After what interval is it again the same at that place, and why?

ARITHMETIC.

Each step in the solution of the questions which are marked with an asterisk is to be explained in terms intelligible to children.

SECTION I.—1*. Subtract 579 from 724.

2*. If 9 things cost 11*l.* what will 13 cost? Prove the method by which you work this sum, having recourse to no other than the first four rules of arithmetic.

3*. Eggs are sold at the rate of 5 for 3*d.* At what price must they have been bought to gain 20 per cent.

SECTION II.—1*. Reduce $\frac{6}{9}$ to its lowest terms, multiply it by $\frac{3}{4}$, and divide the product by $\frac{1}{2}$.

2. Of what distance is $4\frac{1}{2}$ miles seven-tenths?

3*. If A. can reap $\frac{2}{3}$ds of a field in 4 days, and B. $\frac{2}{5}$ths of it in 3 days, in what time can A. and B. reap the whole field together?

SECTION III.—1. Find the value of $\frac{\cdot 004 \times \cdot 0003}{\cdot 006}$ and prove the rules by which you point off the decimals.

2. Reduce 5*s.* to the decimal of 3*s.* 4*d.*, and the recurring decimal 1·454545, &c., to its equivalent vulgar fraction.

3*. Extract the square root of 459684, and prove the rule you use.

SECTION IV.—1*. What is the interest of 671*l.* 19*s.* 6*d.* for three months at $4\frac{1}{2}$ per cent?

2*. At what rate per cent. (simple interest) will 250*l.* amount to 300*l.* 12*s.* 6*d.* in $4\frac{1}{2}$ years?

3*. Bought 13*l.* 6*s.* 8*d.* worth of apples at 3*s.* 4*d.* per bushel, part of which being damaged were entirely lost; for the rest, which were sold at 50 per cent. profit, I received 16*l*; how many bushels were damaged?

SECTION V.—1. Which is the cheapest, a hat which costs 15*s*., and will last 9 months, or one which costs 12*s*., and will last 7 months; and how much will a man save in 20 years who wears the cheaper kind of hat, interest not being reckoned?

2. A. offers to give 2*l*. 3*s*. 4*d*. in charity for every pound B. gives to it; B. gives 5*l*. 6*s*. 8*d*; what will A. have to give?

3. A farmer, who threshes 1000 quarters of wheat, annually saves 1*s*. per quarter by using a threshing machine. In erecting this machine he sunk 200*l*., how much of that sum will his savings have paid back to him at the end of 5 years, allowing 5 per cent. interest on the sum which remains unpaid at the end of each year, and 5*l*. annually for repairs?

SECTION VI.—1. Give and prove short rules for finding the price of a dozen, a score, and a hundred articles.

2. Give and prove short rules for finding the price of a lb. from the price of an ounce, and of a cwt. from the price of a lb.

3. Give and prove short rules for finding the interest of any number of pounds for a given number of months at 5 per cent. and at 6 per cent.

MENSURATION.

SECTION I.—1. The side of a square field measures 120 yards, find the side of another square field six times the size of the first.

2. Find the area of a circular ring, whose inner diameter is 3 ft. 9 in., and its outer diameter 4 ft. 7 inches.

3. Find the solid content of a frustum of a right cone, the diameters of whose top and bottom are respectively 7 inches and 11 inches, and its height 13 inches.

SECTION II.—1. If a wall be 72 ft. 6 in. long, and 19 ft. 3 in. high, and 5½ bricks thick, how many standard rods of brick-work are there in it?

2. What must be the length of the cord used to strike a circle, which shall contain one acre?

3. What is the solid content of a spherical segment whose height is 2, the radius of the sphere being 5?

HISTORY.

SECTION I.—1. Under what circumstances, and in what century, did the Romans finally abandon Britain?

2. In what way is the history of the great Constantine associated with that of Britain?

SECTION II.—1. At what time and under what circumstances was the conquest of Ireland effected?

2. What were the British possessions at the death of Henry V.? When, and under what circumstances, were those in France lost?

3. What monuments are there of the original inhabitants of Ireland? By what name was that country known from the fourth to the eleventh century? In what respects do its inhabitants, during that period, appear to have differed from the people whom they succeeded?

SECTION III.—1. Who were the sovereigns between Edward III. and Henry VII., and what were their respective claims to the succession?

2. What was the title and claim of George I. to the throne?

3. Name some of the principal English writers of the eighteenth century, and give an account of the life, works, and style of one of the most distinguished among them.

SECTION IV.—1. When, and under what circumstances, were the colonies of New England and Virginia first settled? How long was this after the discovery of America?

2. When, and under what circumstances, did the British first obtain permission to erect a factory in Bengal?

3. What are the present British possessions in India; from what native powers and under what circumstances have they been severally conquered?

SECTION V.—1. State shortly under what circumstances the four great empires of antiquity succeeded each other.

2. Give some account of the dissolution of the Macedonian empire.

3. Give some account of the life of one of the following eminent persons:—

1. Themistocles.—2. Alexander the Great.—3. Julius Cæsar.

Correspondence.

GRAMMAR LEARNING AT OUR CLASSICAL SCHOOLS.

SIR,—Allow me to address a few lines to your readers on the subject of grammar-learning at our classical schools. When I held the office of examiner at one of our universities, I had an excellent opportunity of forming a fair estimate of the state in which young men are generally sent from school to college. The inability of the greater number of those who came under my notice during three several examinations, to bear a searching grammatical trial, surprised me not a little. Many were *profoundly ignorant*, these of course were rejected as incompetent; many were barely passable, and only one here and there had a full knowledge, or could make a free use, of his grammar rules. The defect I speak of was often quite evident, even in the case of those whose general scholarship was showy; who could translate with considerable fluency, and who, I doubt not, could have produced a pretty copy of verses, *if allowed to choose their own words, and thereby to escape the embarrassment which the necessary introduction of words exceptional in gender, declension, &c., might have occasioned them*; a great art in verse making, where gradus and dictionary are not allowed. And here let me suggest, before I proceed, as a corrective of this very delusive kind of fluency, that it would be well for masters, occasionally, preventing for the time all use of books of reference, to frame exercises which should necessitate the use of exceptional words; that is, giving the irregular word in its simple form, and so arranging the English sentence as to force the pupil to show whether he is aware of the irregularity or not. As for instance, to insist on the use of the word "maledicus," giving as an English "more abusive." Entire sentences might thus be framed of words anomalous in formation and government, both in Greek and Latin. Such "exercises in irregulars" would be invaluable for senior boys, and something of the same kind would form no bad ingredient even in university examination papers. I am quite certain, that very many, even of those who are candidates for high honours, would find themselves here and there at a loss, if thus brought to book. Does it not indeed stand to reason, that after the first two or three years of classical study, the attention ought to be far more directed to instances of deviation from the usual forms and laws of declension, structure, &c., than to instances in strict conformity with general rule? The latter are exemplified in every sentence which a boy learns to construe or parse; yet, if you stand and listen to the master, as I have frequently had the opportunity of doing, you will find that for the most part, even if he pretends to teach grammatically, he goes grinding on with the same questions over and over again, on some few of the more familiar rules, appearing quite as anxious to shirk those which are out of the common way as his pupils can be. Whether this arises, in the greater number of instances, from ignorance, obliviousness, or downright want of common sense in the instructor, I do not undertake to say.

With the various requirements of the present day, it is perhaps difficult for any master to persevere in teaching the elementary parts of language soundly, and what I should venture to call conscientiously, "line upon line, line upon line." Some teachers fully acquit themselves when they have made their pupils learn the respective grammars twice, or, at the utmost, three times; and, as the pupils rise in the school, less and less reference is made to grammar rules. Even in many of the public schools, I have reason to think that, in this respect, there is often much slackness. It is true, that a weak point is now and then accidentally exposed: the master is surprised; his confidence in the general soundness of his boys is shaken; then come fitful grammatical questionings for a week or so, but with immense masses of construing to be accomplished; there is no time for pursuing the practice consistently, and parsing is again dropped. Then, when the boy is placed before a new and searching interrogator, he is confounded at his own ignorance, and ashamed that he no longer knows what he once knew. If the main share of the disgrace of a *pluck* could be made to fall on the shoulders of culpable or inefficient masters, there would be many more cases of rejection at our university examinations; the average standard would be raised, which it ought to be, and schoolmasters would be obliged themselves to be adequately prepared, and to tighten the strings of discipline on their pupils; respect for their own character would prevent them from allowing the resources of authority to be wrenched out of their hands by silly parents or tender theorists.

Allow me now to offer the following suggestion. With the partial management of a large school on my hands, I never allowed grammar learning to droop, or myself to think that even my head boys knew their grammars well enough: by keeping up the practice of grammar unfailingly, I kept up the knowledge perfectly, with a very slight expenditure of time. The first lesson in the morning was always a grammar lesson. Excepting only those who were learning their grammars in small fragments, for the first and second times, I divided all the pupils, irrespective of their other classifications, into three large classes, committing each to a several master. I found that the lowest of these, who had learnt the grammar twice before in small portions, could easily say a repetition of three or four pages—two of accidence, and two of syntax—a division unnecessary, except for young boys. Those in the class above learned a proportionately larger quantity, *with the addition of all the more important matter which the notes of good grammars generally contain.* I would especially mention Dr. Major's of King's College. The senior pupils had also their grammar lessons, with such additional notes as I judged might be useful to them. By this gradual process I got good grammar lessons, and a knowledge of all exceptional cases of importance, and that, without any sense of oppression on the minds of the boys. Many of them subsequently went to the highest public schools; and I never knew one who did not express himself as deeply indebted to me for persevering in the plan to which I have alluded, and who did not find himself in respect of grammatical accuracy superior to those into competition with whom he was thrown. Hoping that this experience may be useful to some of your readers, I remain, sir, yours very truly,

M. A. OXON.

PROFESSOR HALL'S ELEMENTS OF ALGEBRA.

Sir,—In your November number, the reviewer, while bestowing general praise upon Professor Hall's Elements of Algebra, is very severe in his remarks upon particular parts of the work, and, as it seems to me, with some injustice; the portion which he selects for his especial castigation being the proof of the method for finding the greatest common measure of three numbers; which, while I certainly think it is not the clearest that can be given, still has by no means the illogical character imputed to it. As your reviewer quotes the proof, it stands thus:—

To find the greatest common measure of three numbers, a, b, c.

Let D be the greatest common measure of a and b
and E ,, ,, ,, of D and c
Then E is ,, ,, ,, of a, b, c.

For every com. meas. of a and b measures D, therefore E measures a and b; and it is the greatest that measures D and c, therefore it is the greatest which measures a, b, c.

And then, taking this as his text, he proceeds to liken it to the syllogism,—

Every horse is a quadruped,
a cow is a quadruped:
therefore a cow is a horse.

Now it seems plain at once that in the first sentence there must be a misprint in the stopping, either of the original text, or of the quotation, the semicolon being in its wrong place. It should be,

For every com. meas. of a and b measures D;
Therefore, &c.

Of course the fact of E measuring a and b following, not from what goes before, but because E itself is a measure of D, and ∴ necessarily of a and b, of which D is a common factor.

The fault in the proof is, that it is too short, as will at once be seen by expanding it a little, *thus*:

(Now) every com. meas. of a and b measures D; (1)
Therefore (since) E measures a, b, (and c)
And (since) it is the greatest which measures D and c,

(and by (1) all the com. meas. of a and b measure D, and ∴ all the com. measures of a, b, and c measure D and c, or are identical with the com. meas. of D and c., since all the com. measures of D and c, also, measure a, b, and c.)

$\therefore$ It is also the greatest which measures a, b and c.

I must say, however, that it is not even then so clear a proof as the following:—

To find the greatest common measure of three numbers, a, b and c, (having first shown, of course, that all the measures of two numbers measure their great com. meas.)

Let d be the greatest common measure of a & b
and x ,, ,, of d & c
then x is the ,, ,, of a, b & c

For,
x being a com. meas. of d and c is also a com. meas. of a, b and c.

Also all the other com. meas. of a and b measure d,
and $\therefore$ all the other com. meas. of a, b and c measure d and c; and $\therefore$ also measure x, which is the greatest com. mea. of d and c.

Since then x is a com. mea. of a, b and c, and all the other com. measures of a, b, c measure it, it must be the greatest com. measure.

I am, Sir, your obedient servant,
C. C.

[This defence of Professor Hall's logic is more plausible than sound. If we do not misunderstand "C. C.'s" 'little' expansion of the professor's reasoning, he will have it that the word 'since' is to be understood twice, the passage then standing as follows:—

"For every common measure of a and b measures D, therefore (since) E measures a and b, and (since) it is the greatest that measures D and c, therefore it is the greatest which measures a, b, c." *

But, under this point of view, one of the words 'therefore' is superfluous, and will have to be rejected; but we do not see what right any one has to omit it. In fact, the word 'therefore' occurring *twice*, there must be *two* inferences. The inference corresponding to the first 'therefore' cannot be 'E is the greatest number which measures a, b, c,' for this is clearly the inference corresponding to the second. What then is the inference corresponding to the first 'therefore?' It evidently *can* be no other than 'E measures a and b,' and the word 'since' cannot therefore be understood before "E." Since then, "E measures a and b," is an inference; and since moreover the only previous portion of the passage is, "Every common measure of a and b measures D," are we not *compelled* to conclude that the professor intended the former of these propositions to be inferred from the latter?

We must emphatically deny therefore that we have done Professor Hall any injustice. We maintain that we have criticised his work fairly, and that the passage commented on can only be understood in the sense in which we took it. "C. C." entirely begs the question, and his remarks are fairly open to further comment; but we are content, after the preceding observations, to leave the whole matter to be decided by each reader for himself.]

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* By some inadvertence, a semicolon was inserted in our quotation in the last number instead of a comma. There is no semicolon in the original text, either in the last edition or the previous one.

Notices of Books.

NEW CLASSICAL DICTIONARY OF BIOGRAPHY, MYTHOLOGY, AND GEOGRAPHY; PARTLY BASED ON THE "DICTIONARY OF GREEK AND ROMAN BIOGRAPHY AND MYTHOLOGY." BY W. SMITH, LL.D. (London: *John Murray; Taylor, Walton, and Maberly.* 1850.)

THIS dictionary is intended for younger students, and to elucidate the Greek and Roman writers usually read in schools. In size and in purpose it may be compared with Lempriere's Classical Dictionary, which has passed through many editions. "The biographical and mythological articles," it is observed in the Preface, "are founded upon those in the Dictionary of Greek and Roman Biography and Mythology;" but the geographical articles are written entirely for the present work. In addition to the original sources the Editor has availed himself of the best modern treatises on the subject, and of the valuable works of travels in Greece, Italy, and the East, which have appeared within the last few years, both in England and in Germany. It is hoped that, in the Geographical portion of the work, very few omissions will be discovered of names occurring in the chief classical writers; but the great number of names found only in Strabo, Pliny, Ptolemy, and the Itineraries, have been properly omitted, except in cases where such names have become of historical celebrity, or have given rise to important towns in modern times. The Editor has to express his obligation to his brother, the Rev. Philip Smith, who has rendered him valuable assistance by writing the Geographical articles relating to Asia and Africa.

Teachers have now the opportunity of comparing a new work with the editions of Lempriere, which are about the same size. We say nothing of a comparison between this work and the edition of Lempriere by Anthon, which is overloaded with false learning and useless matter. Besides this, Anthon's edition, we believe, cannot be got in England, because the Editor has taken so much from English copyright works, that his book is shut out as a piracy. Though Lempriere has been somewhat purged and improved, by various hands, the book is so radically bad, that it may be pronounced past cure; and a new book was wanted.

All the Editor could do, with names of persons and mythological names, was to abridge carefully the large Dictionary of Greek and Roman Biography. Such a work as the large Dictionary cannot be free from error; and, when so many hands were employed, the execution must be in some degree unequal. To correct all the errors, which unavoidably creep into so large a work, would be almost equivalent to the labour of re-writing the articles. In this work the Editor has judiciously allowed a reasonable space for the names of the chief Greek and Roman writers, and the chief personages in Greek and Roman History; but other names of less importance have not been omitted.

The Editor has marked the quantity of the doubtful syllables in the names of persons and places which stand at the head of an article; and, in the case of Greek names, he has also given the Greek form.

In the case of names of places, he has given the Ethnic name. The following is an instance: "Abdēra (τά Ἄβδηρα, Abdera, ae; and Abdera, orum: Ἀβδηρίτης, Abdērītes and Abdērīta)." This will be very useful to young students, who are apt to blunder about proper names; and it may be useful to many teachers, who have been accustomed to allow a careless habit to be acquired by their pupils, as to the use of proper names, and particularly names of people derived from places. The modern names of places also are given when they could be ascertained.

In a work of 832 pages only, though printed in double columns and in a smallish type, it is impossible to give all that many persons would wish; and the student must be satisfied if he finds in a book of such dimensions as much as it could be made to hold. And this appears to have been accomplished by the Editor. Indeed, a small work is much better adapted for boys than a large one. All that they want is to find the names that occur in the ordinary books that they read, and as much good information as the limits of the book will allow. References, which are here omitted, and discussions of disputed points, would be of no use for boys. The work, however, contains a great many Christian names, which a schoolboy will never want to know anything about, such as Zonaras and Zosomus, for instance. This will no doubt be useful to many persons, who cannot afford to buy more expensive works, to find even such names as these; but it may still be a question whether, for school use, a Dictionary would not be best which shall contain only the names of persons and places mentioned in the Greek and Roman writers within a given period. There would not be much difficulty in limiting a work in this way, with respect to names of persons and names of writers; but there would be more difficulty as to names of places. The advantage of limiting a work for school use in the way here mentioned, would be, that more space could be given to the names which occur in books which young students read. The disadvantage would be, that persons, except young students, would complain of its incompleteness. However, we think that it is still a question worth consideration, which of the two plans should be adopted in a school-book.

Those who have the opportunity may compare the longer articles in this work with those in the latest editions of Lempriere; and such a comparison will easily enable them to form a judgment of the comparative merits of the two works. The Geographical part, which is entirely new, is very complete, both as to names and the handling of them. In some cases there is less said under the smaller names than one might require; but there is as much said as could be done within the limits, and the Editor has done wisely in not making the book larger.

REPORT OF THE FIFTH ANNUAL MEETING OF THE LAMB AND FLAG RAGGED SCHOOLS, CLERKENWELL. (1850.)

THE amount of good at present effected by Ragged Schools is a subject which we do not feel competent to discuss. The experiment must probably be tried for a much longer period, and upon a more extensive scale, before any conclusion which will be generally satisfactory can be arrived at. The object of these institutions is one which must, under any circumstances, create a lively interest in the mind of every philanthropist. The simple knowledge that such an attempt is being made to reclaim the vagabond neglected children of our huge metropolis, can scarcely fail of having a beneficial effect upon some at least of those unfortunate beings, who hitherto have been without any positive assurance that any of their fellow-creatures cared either for their temporal or spiritual welfare. To render such an attempt successful amidst the many difficulties which surround it seems to require an unusual combination of prudence, patience, and enterprise. Still, if it be made in a Christian spirit, with humble reliance upon assistance from above, there is no reason to despair of its ultimate success. The report suggests, that a scheme of emigration, if supported by government, would afford an outlet by which many of those who frequent the Ragged Schools might be rendered useful members of society in foreign lands. It states that, under the care of the Ragged School Union, 150 lads and girls were sent out to several of our colonial settlements, and obtained employment at good wages within three days after landing. With reference to the letters in the *Morning Chronicle,* which have spoken of Ragged Schools as "nurseries for crime," it mentions as a fact, "that during a period of five years not more than half-a-dozen out of many hundreds have rendered themselves amenable to the criminal laws." The report concludes with the testimony of Mr. Serjeant Adams, which the great experience of that learned judge renders peculiarly valuable, and which we are therefore glad to record in our journal, as what may be regarded as a step towards the solution of the question, whether Ragged Schools should be encouraged. His testimony is :—"Much good has been effected by Ragged Schools; and, lowly as they may be at present, their influence must have inspired the minds of these poor, wretched, and miserable children with self-respect, self-consideration, and good ideas. These institutions are a great blessing, and may God send that they will take root and prosper in the good work which they have begun!"

LECTURES ON NATURAL PHILOSOPHY. BY THE REV. J. W. M'GAULEY, CANON, ETC., PROFESSOR OF NATURAL PHILOSOPHY, AND ONE OF THE HEADS OF THE TRAINING DEPARTMENT TO THE NATIONAL BOARD OF EDUCATION IN IRELAND. Vol. I. pp. 368. Vol. II. pp. 286.

SCIENCE SIMPLIFIED; AND PHILOSOPHY, NATURAL AND EXPERIMENTAL, MADE EASY. BY THE REV. DAVID WILLIAMS, M.A. 12mo. Pp. 150.

The Training Institutions established in this country have been the means of creating a new class of educational works. Hitherto, books on the principles of science have been written, either for the instruction of the collegiate student or for the amusement of the mere popular reader. Now, whilst the student of a training institution should not be left in ignorance of the great principles of science, he has only a short time to bestow upon their acquisition. Mere popular science is not sufficient for him. Books, therefore, intended for his use, should be concise without being obscure—comprehensive without being shallow—demonstrative without being abstruse—and practical without being dogmatic; in short, the books best adapted for his use must contain the greatest amount of knowledge, communicated in the most simple style, and comprised in the least possible space. Abstruse definitions, axioms, postulates, &c., &c., long and so-called logical investigations are not the sort of things which he requires.

We have arrived at a great educational epoch, when METHOD, as applied to instruction, is claiming the attention which it unquestionably deserves; and when books, constructed on the principles developed by method, must receive more decided attention.

Dr. M'Gauley's book contains a large body of useful information on natural and experimental philosophy, adapted for the use of normal schools. The first volume treats of mechanics, hydrostatics, pneumatics, optics, electricity, galvanism, magnetism, and heat. The second volume treats of chemistry only. Although Mr. M'Gauley's work may not have come fully up to our notions of a system of instruction on science, adapted for the use of teachers, we have no hesitation in saying, that the work is written with considerable ability, and deserves public encouragement.

The second book above-named contains a series of very rudimentary lessons on animal and vegetable physiology, mechanics, optics, astronomy, and geology. One great defect of the book is its want of cuts.

OUTLINES OF PHYSICAL GEOGRAPHY, DESCRIPTIVE OF THE INORGANIC MATTER OF THE GLOBE, AND THE DISTRIBUTION OF ORGANIZED BEINGS. BY EDWARD HUGHES, F.R.G.S., HEAD MASTER OF THE ROYAL NAVAL LOWER SCHOOL, GREENWICH HOSPITAL. WITH EIGHT MAPS, COMPILED BY WILLIAM HUGHES, F.R.G.S., LATE PROFESSOR OF GEOGRAPHY IN THE COLLEGE FOR CIVIL ENGINEERS. *Second edition, greatly enlarged.* (London: *Longmans*, 1850.)

ELEMENTS OF PHYSICAL GEOGRAPHY, WITH OUTLINES OF GEOLOGY, MATHEMATICAL GEOGRAPHY, AND ASTRONOMY, AND QUESTIONS FOR EXAMINATION. BY HUGO REID. WITH NUMEROUS ILLUSTRATIONS, AND A LARGE COLOURED PHYSICAL CHART OF THE GLOBE, BY W. AND A. K. JOHNSTON. INTENDED AS A COMPANION TO ALL GEOGRAPHIES. (Edinburgh: *Oliver & Boyd*, 1850.)

A COMPENDIUM OF MODERN GEOGRAPHY, WITH REMARKS ON THE PHYSICAL PECULIARITIES, &C. OF THE VARIOUS COUNTRIES, AND DESCRIPTIVE TABLES, IN WHICH ARE GIVEN THE PRONUNCIATION, AND A CONCISE ACCOUNT OF EVERY PLACE OF IMPORTANCE, &C. TO WHICH ARE NOW ADDED OUTLINES OF MATHEMATICAL GEOGRAPHY, ASTRONOMY, AND PHYSICAL GEOGRAPHY. ILLUSTRATED BY TEN MAPS, INCLUDING A COLOURED CHART OF THE GLOBE. BY THE REV. A. STEWART. *Ninth edition.* (Edinburgh: *Oliver & Boyd*, 1850.)

IN no department of school instruction has modern improvement proceeded more satisfactorily, both as to matter and method, than in the subject of the above-named treatises. We remember with vexation the uninteresting and unprofitable task-work imposed upon us by the geography of our school-boy days; and we congratulate the present generation of learners on the pleasure and advantage now associated with the means of geographical instruction. The benefit to which we refer is, in a great measure, the fruit of the cultivation which Physical Geography has of late years received. It is in this that the seeds and sources of what is commonly called Descriptive Geography are to be sought; and any attempt to learn the science without an examination of these, must be very irksome, and of very small utility.

Accordingly, we find appended, in the latest edition of Stewart's Compendium, a systematic view of Physical Geography, which certainly much enhances the value of what had been previously one of our best approved school-books. We can now, therefore, recommend this little volume as a very economical and useful text-book for elementary schools.

A larger amount of well-digested information on the subject of Physical Geography will be found in Hugo Reid's Elements, from which the appendix in Stewart appears to be mainly an abstract. The cheapness of Reid's book is a great merit in relation to the excellence and well-developed order of the matter.

But decidedly the best book for schools on the subject of Physical Geography is, in our opinion, the one first named at the head of these remarks. The interesting and useful information which it contains, the just and well-expressed sentiments with which it is interspersed, and the judicious arrangement of the whole subject, entitle Mr. Hughes's Outlines to far more extensive patronage than that of the scholastic profession. As a teacher of Geography, Mr. Hughes is acknowledged to be most successful; and his Outlines, in the hands of any judicious instructor, will, we apprehend, contribute greatly to the attainment of similar success. The Maps compiled by Mr. William Hughes are what the reputation of that eminent geographer would argue, and form a valuable feature of the book.

SELECT ENGLISH POETRY, DESIGNED FOR THE USE OF SCHOOLS AND YOUNG PERSONS IN GENERAL. EDITED BY THE LATE DR. ALLEN. Pp. 360. (*Jackson and Walford.*)

This Selection, which has reached a fifth edition, deserves the favour with which it has been received. It has evidently been made by a person of good and correct taste. It is not a hasty compilation, but the result of a careful and deliberate consideration of what is most likely to prove engaging and instructive to the young, and to give them a general notion of the different styles and characteristics of English poetry. For a work of this description, the proportion of pieces and extracts from our principal modern poets is perhaps unusually large; but interspersed with them are to be found many of the best known passages from our older writers. The pieces are not placed under different heads or in chronological order, but the arrangement is miscellaneous, thereby rendering the volume more interesting and varied. We can confidently recommend it for young persons in general, as calculated to promote the cultivation of poetical taste, and an acquaintance with the differ styles of many our English poets.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 84.—*Proposed by J. H.*

FOUR labourers, A, B, C, and D, are engaged to dig a field containing 2 acres, 3 roods, 4 perches, 9 sq. yards. A digs 200 yards the first day, 205 the second, 210 the third, and so on; B digs 220 yards the first day, 216 the second, 212 the third, &c.; C digs 180 yards the first day, 186 the second, 192 the third, &c.; and D digs 225 yards the first day, 220 the second, 215 the third, &c. How many days will the work occupy them?

Answered by Mr. Henry Hill, Mr. J. W. Spedding, Mr. Dungate, and Mr. G. Barnacle.

No. yds. dug in the first day = 825.
,, second day = 827.
,, third day = 829.

Now these numbers are in arithmetical progression, the common difference being 2. Let x = the number of days, then we have by the general formula for the sum of an arithmetical series

$$\left\{2 \times 825 + (x - 1)\,2\right\} \times \frac{x}{2} = 13440,$$

$$\therefore\ x^2 + 824\,x = 13440,$$

$$\therefore\ x = 16, \text{ the number of days required.}$$

QUES. 85.—*Proposed by the Editor.*

Give a geometrical construction of the problem contained in question 81.

Answered by Mr. Righton, Prismoid, Mr. Salter, Mr. O'Clazey, Mr. Royds, Nero, and Mr. Stanwick.

Let A B C be the triangle. Upon the base A B describe a semicircle; divide A B into three equal parts in the points a and b; and from a and b draw the perpendiculars $a\,c$ and $b\,d$, meeting the semicircle in the points c and d. With the radius A c cut A B in D, and with the radius A d cut A B in E: then D and E are the points required. Draw D P and E H parallel to B C, meeting the side A C in the points P and H.

Demonstration. $AB \cdot Aa = Ac^2 = AD^2$, (*Euc.* VI., 8);

$$\triangle ADP : \triangle ABC :: AD^2 : AB^2, \text{ (Euc. VI., 17)}$$
$$:: AB \cdot Aa : AB^2$$
$$:: Aa : AB$$
$$:: 1 : 3,$$
$$\therefore\ 3\,\triangle ADP = \triangle ABC.$$

In like manner $3\,\triangle AEH = 2\,\triangle ABC$; and so on.

QUES. 86.—*Proposed by John C., Ecclesall School, Sheffield.*

Find the value of x in the following equation:—

$$8^x + \frac{1}{8^x} = 4\tfrac{1}{4}.$$

Answered by Mr. Herbert, Mr. Salter, and the Proposer.

Multiplying by 8^x, and transposing,

$$8^{2x} - \frac{17}{4} \cdot 8^x = -1,$$

$$\text{completing the sq., } 8^{2x} - \frac{17}{4} . 8^x + \frac{289}{64} = \frac{225}{64},$$

$$\text{extracting the sq. root, } 8^x - \frac{17}{8} = \frac{15}{8},$$

$$\therefore 8^x = 4,$$
$$\text{cubing each side, } 8^{3x} = 8^2,$$
$$\therefore 3x = 2,$$

$$\text{and } x = \frac{2}{3}.$$

LIST OF MATHEMATICAL ANSWERS.

Prismoid, Tewkesbury, ans. 84, 85, 86; J. Herbert, Little Woolton, ans. 84, 86; J. O'Clazey, Durham, ans. 84, 85, 86; Emma Royds, Hollingworth Free School, ans. 84, 85, 86; H. Hill, Chester, ans. 84, 86; W. Righton, Ripley, ans. 84, 85, 86; T. Dungate, Ightham, ans. 84; J. W. Spedding, Bradford, ans. 84, 86; W. Leonard Brown, Ightham, ans. 84; J. Webb, Ightham, ans. 84; J. Brown, Barton, ans. 84, 86; J. Royds, Belfield, ans. 84, 85, 86; W. H. Levy, Shelbourne, ans. 84, 85, 86; J. Stanwick, Gillingham, ans. 84, 85, 86; J. C. Ecclesall, Sheffield, ans. 84, 86; G. Barnacle, Empingham, ans. 84, 86; J. Fox, Burton, ans. 84, 86; T. Sothern, Burton-wood, ans. 84, 85, 86; W. Crow, Lockwood, ans. 84, 86; Thomas Brown, ans. 84, 86; J. Salter, Durham, ans. 84, 85, 86; A. Ford, Norham, ans. 84, 85; C. P., ans. 84, 85, 86; W. Wakely, Marlborough, ans. 86; Kerslake, ans. 84, 86; Nero, Berwick, ans. 84, 85, 86; G. Morris, Gosport, ans. 84, 86; A. M., ans. 85, 86; J. Sheppard, Gillingham, ans. 84, 85, 86; Quere, ans. 84, 85, 86; Sam. Dyer, Wanstead, ans. 84, 86.

NEW QUESTIONS,

To be answered in our Number for February, 1851.

Ques. 87.—*Proposed by Mr. O'Clazey, Durham.*

A man and a boy are engaged to dig a trench. The man could finish it in 12 days, and the boy in 20; supposing them to begin at the same time, one at each end of the trench, when should they exchange places so as to meet exactly in the middle?

Ques. 88.—*Proposed by Mr. Dyer, Wanstead.*

A cylindrical glass, six inches long, is forced into a tub of water until the top of the glass is on a level with the water in the tub. How high will the water ascend in the glass?

Ques. 89.—*Proposed by Nemo.*

How many cubic feet of water must descend a river every minute to drive a water-wheel of P effective horse-powers, by means of a fall of h feet, the wheel yielding the n^{th} part of the work of the fall?

Intelligence.

GOVERNMENT EXAMINATION FOR CERTIFICATES OF MERIT AND FOR QUEEN'S SCHOLARSHIPS. Christmas, 1850.—We have ascertained that about four hundred and fifty candidates for certificates, and upwards of fifty competitors for Queen's Scholarships, attended the recent examination before H. M. Inspectors at the various Training Colleges. The last-named class of candidates are pupil teachers who have completed the term of their apprenticeship, and are thus eligible to compete for the advantages held out to them under the minutes of 1846, consisting of exhibitions to the amount of 20*l*. or 25*l*. towards defraying the cost of their residence in any training school, to be selected by themselves, under certain limitations.

We subjoin the names of the Institutions at which an examination has been held at Christmas, with the name of the Inspector by whom it was conducted in each case:—Battersea, Rev. J. J. Blandford; St. Mark's, Chelsea, Rev. W. H. Brookfield; Home and Colonial, Rev. M. Mitchell; Whitelands, Rev. F. C. Cook; Cheltenham, Rev. H. W. Bellairs; Chester, Rev. J. P. Norris; York, Rev. F. Watkins; Durham, Rev. D. J. Stewart; Salisbury, Rev. E. D. Tinling; Carmarthen, Rev. H. L. Jones; Warrington, Rev. W. J. Kennedy; Kneller Hall, the Rev. F. Temple, Principal; Borough Road, J. Fletcher, Esq.

OXFORD UNIVERSITY COMMISSION. — An additional circular has been issued by Mr. Stanley, the Secretary to the Oxford University Commission, requesting information on the following heads of inquiry:—

1. Is your society governed by statutes? If not, are there any orders or rules by which it is governed?

2. If the society is governed by statutes, were those statutes given by the founder? Are the original statutes in force, wholly or in part? If they are not in force, by what authority and when have they been altered?

3. Is there any provision in your present statutes for their alteration or amendment? or was there, in your original statutes, any such provision?

4. Will you state in what respects, if any, your statutes have ceased to be observed—whether owing to lapse of time or other causes?

5. In what case is the non-residence of your head or your fellows permitted by the statutes? and how many of your fellows are non-residents? Would the University or the college be benefited, in your opinion, by the general enforcement of residence?

6. Is the marriage of the head of your college permitted by the statutes? If not, by what authority is such permission granted? Is that permission applicable to any other members of the foundation besides the head?

7. Does the college consist of several foundations? If so, do the fellows on the several foundations enjoy the same rights and advantages?

8. Are there in your college any unincorporated or by-fellows? If so, by what statutes are they governed? Do you consider such fellowships beneficial to the society? Or do you think their present position might be altered with advantage?

9. How many of your fellowships, studentships, scholarships, exhibitions, or the like, are at present open to competition without restriction; and how many confined to particular places or schools, or to persons of the kin or name of founders?

10. Will you quote the clauses of your statutes on which any such restriction rests, together with any special reasons which the founder or framer of your statutes may have had for this restriction?

11. Is the restriction absolute? If not, has the college availed itself

of any facilities which the statutes allow for opening the foundation?

12. If the statutes give a "preference" to certain candidates, how do you interpret such preference?

13. Do you consider the present restrictions, if any, on the election of your fellows, students, scholars, demies, or the like, to be beneficial to the promotion of education or learning in the University, in your own society, and in the particular place, school, or family, if there be any, which is supposed to be favoured by those restrictions?

14. Are your fellowships, studentships, scholarships, demyships, or the like, disposed of strictly according to merit? Is such merit tested by examinations?

15. What is the statutable connection between your fellowships and your scholarships, demyships, or the like? What is the practice in this respect?

16. If your fellowships are limited to those who are or have been scholars, or the like, of your society, has this system been found beneficial to the college?

17. Are the fellows of your college obliged to proceed to the higher degrees? If so, in what faculties?

18. Do your statutes enjoin that your fellowships, studentships, scholarships, or the like, be increased or diminished in number as the revenues of your college vary? Has such provision of the statutes been acted upon? Do you conceive that the enforcement of such provision at the present time would be beneficial to the society?

19. Do your statutes contemplate the residence in college of any undergraduates not on the foundation? Do they forbid it? Will you quote the clauses in your statutes on which such permission or prohibition rests?

20. What amount of property vacates a fellowship, scholarship, or the like, according to your statutes? Is the rule enforced equally with regard to real and personal property? Do you conceive that the enforcement of such a rule at the present time would be beneficial to the society?

21. Is the head of your society statutably required to enter into holy orders? How many of your fellows, students, or the like, are subject to the same rule? If the statute be not observed, on what authority does the non-observance or dispensation rest? Is the obligation to enter into holy orders expressly laid down by statute, or is it deduced from an injunction to study theology, from an injunction to discharge clerical duties now disused, or from any other like provision.

22. Are your fellowships confined to persons of a certain University standing? Is the admission of undergraduates to fellowships, or the restriction of fellowships to persons of particular degrees, productive of inconvenience?

23. Are clergymen excluded from presenting themselves as candidates for your fellowships? Are laymen?

24. Are fellows or other members on your foundation allowed by statute or other authority to hold ecclesiastical preferment? and, if so, to what amount?

25. What statutable restrictions limit the selection of your head?

26. How many benefices in the gift of your society have been added since the original foundation? Will you state at what time and in what manner each was acquired? Have you at present a fund for the purchase of advowsons?

27. Are there any prælectorships founded in your college for the benefit of the whole University? Are fellowships connected with such prælectorships? If so, do the statutes allow any special liberty of choice in the fellowships so connected?

28. Has the college the nomination to the masterships of any schools? What control does the college exercise over such schools?

29. Will you quote the clauses of your statutes which set forth the powers and duties of the visitor of your college? Has the visitor ever interposed his authority to relieve the college from the observance of any of the statutes, or to make new statutes or ordinances?

30. Are gentlemen commoners in your society called upon to pass the

same examination at entrance as other persons? Do they follow the same course of studies, and are they subjected to the same discipline as other persons *in statu pupillari?* To what charges are they liable beyond those borne by other independent members?

31. Can you state how many members of your society receive assistance from exhibitions or the like, not in the gift or under the administration of your society? What are the sources and what is the amount of the assistance so received?

32. How many persons are supported, wholly or in part, in your society as batellers, servitors, Bible-clerks, or the like? What are their duties, and what are their stipends or other emoluments or immunities? How are they chosen? Are they marked by any particular dress? Was the number ever greater? If so, can you state why it has been reduced? What do you consider to be the advantage or disadvantage of such a body of scholars?

33. How many tutors are there in your society? How many lecturers, catechists, or other instructors, who are not tutors? Does the head of your society take any direct part in the instruction?

34. Are there any tutors in your society who are not, or have not been, on the foundation? Do they all reside within the walls?

35. Is each tutor expected to lecture on all subjects; or is there a division of subjects?

36. During how many weeks in the year are lectures given in your society? Will you state the average number of lectures given weekly, and the subjects? How many undergraduates attend mathematical lectures beyond arithmetic and the elements of Euclid and algebra?

37. Are any members of the college required to attend any professor's lectures? And are any means adopted by the college to secure profitable attendance by examination or otherwise?

38. Can you state how many members of your foundation, and how many ndependent members of the society, are engaged as private tutors?

39. Can you state how many undergraduate members of your society are now reading with private tutors?

40. What attendance at chapel is required by your statutes? What attendance is actually enforced? And by what means? Is attendance at chapel ever enforced as a punishment?

41. What is the nature and extent of religious instruction given in your society, distinguishing lectures and sermons delivered in chapel, and instruction given in other ways?

42. What is the average amount of the "battels" of each independent member of your society? What was the highest and what was the lowest amount in the year 1849?

43. Will you have the goodness to supply the commissioners with a weekly battel bill of the average amount, and with a quarterly battel bill for each of the four quarters of 1849, also of the average amount?

44. What is the lowest yearly sum for which you have known an undergraduate to live in your society? What is the lowest amount which you have known an undergraduate to expend, from his matriculation to his graduation?

45. Do you conceive that the college expenses could be materially diminished? If so, will you state in what respects?

46. Is the college library open to all members of the college, and what fees are paid to the library by each member?

47. What number of under-graduates is your college capable of accommodating?

The two following circulars have been issued by the Commission to the Master and Fellows of each College, and to the authorities of the Vice-Chancellor's Court:—

"*Oxford University Commission,*
Downing-street, Nov. 1850.

"Gentlemen—Her Majesty's Commissioners for the University of Oxford will feel much obliged for any information which you may be disposed to furnish on the following points:—

"1. The amount of your corporate revenues and their specific application.

"2. The sources from which each portion of the income is derived, and the amount arising from each source.

"3. The proportion of your corporate property which is let on rack-rent, and on lives, or for terms of years; and the principle on which fines are set.

"4. The emoluments of the headship, of the several fellowships, studentships, scholarships, demyships, or the like.

"5. The number, value, and period of tenure of the several unincorporated scholarships, exhibitions, or the like.

"Her Majesty's Commissioners also request that you will furnish them with a copy of your statutes, and with any decrees made by the visitor.—I have the honour to be, Gentlemen, your obedient humble servant,

"A. P. STANLEY, Secretary."

"*Oxford University Commission,*
Downing-street, Nov. 1850.

"Sir—Her Majesty's Commissioners for the University of Oxford request that you will have the goodness to furnish them with answers to the following questions:—

"What persons may practise in the Vice-Chancellor's Court?

"Is the number of such persons limited by any statute, or by custom?

"What qualification, or course of study, is required of those who are appointed to practise in the court?

"What has been the number of suits in the court in each of the last five years?

"What is the most usual cause of civil action in the court?

"What is the expense of each party, under ordinary circumstances, in a suit for the recovery of a debt of 20*l.*?

"What length of time, under ordinary circumstances, passes from the first to the last step in a defended suit for the recovery of such a debt? Are the witnesses examined in open court? Do they give their testimony orally? Are they subject to oral cross-examination? If not, be so good as to state how they are examined and cross-examined.

"If a defendant be sentenced to pay a debt or sum of money to a plaintiff, how is the payment enforced?

"How are the costs of litigating parties in the court taxed, and by whom?

"I have the honour to be, sir, your obedient humble servant,

"A. P. STANLEY, Secretary."

To Correspondents.

Our correspondent, "A Country Master," appears to beg the question, or at least he assumes what requires to be proved: he speaks boldly of "our present *absurd* orthography," and of "what is *erroneously* called the right method of spelling words," and he applies these expressions *generally; i.e.*, without immediate reference to the education of the "dull and dense." We cannot afford to part with anything which serves as a clue to the original meaning of words, and we should not admit our correspondent's general conclusion, even if it could be proved by a very extensive induction, that the phonetic system is a good introduction to the Romanic. To our correspondent, who would fain see the Romanic system abolished altogether, surely this can be no recommendation.

G. N. S. J.'s mode appears to be a good one; but our November correspondent proceeds upon a true principle—that bad spelling is infectious, and that *repeated right impressions* made upon the retina do more good than the admission and momentary correction of wrong ones. He speaks of dictation as generally practised.

"A Subscriber" will find Turner's Notes to Herodotus useful.

EXTRACTS FROM THE PRIVATE DIARY OF THE MASTER OF A LONDON RAGGED SCHOOL.

[This diary was not written for publication: it contains, however, told in a quaint way, much that is interesting and instructive.]

No. 7.

THE LITERATURE OF OUR ALLEY.

OF the ballads, which, as we have already shown, constitute the staple of "the Literature of our Alley," those which refer specially to social subjects, are for the most part not available, as they contain allusions and expressions which might be misunderstood. . . . . . Many of them are the songs of transports, and felons of various grades, who review their past life or future prospects:—

"It was a few hours after her father did appear,
And march'd me back to Omer gaol in the county of Tyrone,
And there I was transported from Erin's lovely home;
When I heard my sentence it grieved my heart full sore,
And parting from my true love it grieved me ten times more."

The next verses inform us, that his "true love" politely called at the gaol to say, that she would remain unmarried until the transport's return to "Erin's lovely home." These songs seem to hold transportation very lightly; and they, with few exceptions, allude to the return of the felons to this country:—

"There is a girl in London town, a girl I love full well;
If e'er I get my liberty along with her I'll dwell."

. . . . . .

Throughout these songs there is not the least expression of remorse, nor do their authors attempt to make the victims of the law give vent to feelings of contrition or sorrow for the past, nor do they ever suggest, that the criminal loses more than his liberty by the punishment awarded for his crimes. He is always made to speak of returning to his friends, as if nothing out of the way had happened; and I have remarked, in a former part of my diary, that this is the actual state of the case in their society. They have very little or no feeling of shame; their behaviour would lead to the belief that they rather gloried in their degradation than otherwise. This is, perhaps, the most unpromising feature in their character. . . . .

I quote from the "spoken" part of a song about the police court, which says little for their natural affection:—

"Now, what is this man brought up for? Felony.—Aye, I think you've been here before. No, I arnt.—I think you have; answer me directly, sir; haven't you been here before? Vell then, I are, and vhat then? *it vasn't felony to beat my own mother*, vos it? That vas all I vas brought up before for.—How do you live? I can't tell.—Where do you get your bread? I can't tell.—Who are your parents? I don't know; you don't think I'm such a soft tommy to go for to criminate myself, vhen 'torney told me vhen I vos up before, not to answer any questions, and he got me off. No, no, it vont do!" . . . .

I pass over such songs as refer to the parish officials, songs descriptive of wakes and marriages, and the like; because the Irish poor rather cherish the poor law than otherwise, and the numerous squibs against their peculiar customs do not gratify them; it is the lower order of English people who rejoice in what are called Irish songs, and not the Irish themselves. I think it is well, also, to state that I merely quote those sentiments from the ballads, which I feel assured the people entertain; I do this with the view of broaching the question, as to whether an effort made to cleanse their literature, might not be an important step in the right direction for the improvement of these people. I have an idea that their welfare is intimately connected therewith. They are influenced by their ballads to an extent which a casual observer would not readily credit. The railway mania did not create a greater sensation on the Stock Exchange, than did the Negro Melodists in our streets and alleys. . . . .

I do not mean to allude to the historical ballads further than to say, that to the perusal of them the inhabitants of the alleys are indebted for any little historical knowledge they possess. "Adam" figures in a ballad, and so does "Prince Charlie." Yet I do not affirm that the chain of song between them is complete—although the old mysteries are traceable; but from the times of the Stuarts down to those of the Nepaulese ambassador and General Haynau, no man of note has figured in the world, who has not been the subject of the people's doggrel.

"Lord Melbourn down to Windsor went,
  As you may understand,
And bolted in the castle,
  Like a little leg of *Lamb*.
He told the Queen the Tory lords
  Was in the mire stuck.
What shall I do, your Majesty?

Then little John, set out upon
  His horse so fine and gay,
With the mutilated Poor Law Bill,
  To Windsor went his way."

. . . . . .

"The Nepaulese Songster," which is printed in the ballad form, that is, in one sheet, measures a fathom and a half, measured as sailors measure ropes on board ship. It is more remarkable for its length of sheet than for the delicacy of its songs. The beautiful wife of the Chief Hankyway is described as having fine teeth:—

"And with them oft, the white men's flesh
She prov'd she'd griddle too."

The songs of emigrants and emigration are innumerable. The next ballad is from the pen of one who could be satisfied nowhere, except, perhaps, as a citizen of the model republic:—

"There no petty workhouse lord
  Tears a man and wife apart;
There no pamper'd tax-fed horde,
  Preys upon a nation's heart."

But others leave their native country with a better spirit:— . . .

"They say there's bread and work for all,
And the sun shines always there;
But I'll not forget ould Ireland,
Were it fifty times as fair."

"England is going down the hill." This songster makes a lady provide for some fatherless children, as if she were doing no more than her duty:—

"'Twas then, said the lady to the little town's boy,
What food on the road did you have?"

To go about making such inquiries would seem to be a lady's business:—

"A lady standing by, who heard the little boy to cry,
With a voice so meek and low;
Then her eyes did start with tears, saying,
Come my little dears,
For compassion I'm resolved for to show,—
So quickly gave them a shelter from the storm.
She did it with a free good will,
For she said, there's none *can learn under*
What planet they were born,
Whilst old England is going down the hill."

The cadgers and tramps have their songs also:—

TUNE.—*All round my Hat.*

"All round the squares and round about the airies,
All round the squares in a quiet arternoon;
And, when the flunkies turns their backs, I comes the presto business,
And takes unkimmin care of all their silver spoons.

All round the squares Sal lugs a pair of babbies;
All round the squares Sal lugs a pair of twins;
And when the public passes by, she pinches them voraciously,
Which makes the babbies for to cry, and sympathy it vins."

TUNE.—*The Long Letter.*

"Then I flings my corpse into the river,
Where there's plenty to drag me safe on shore:
Sal comes up, a long tale to deliver,
To say I've been out of vork six months or more.
Tears from the people's eyes are flowing,—
Ten or twelve bob, they gathers one soon;
Then off ve goes, vith a vink so knowing,
And gets jolly drunk at the Man in the Moon.

Then ve takes up the starved Manchester chizzle—myself, Sarah, and the kids. Ve turns out of a morning vith clean mugs, and myself vith a vite apron in front of me, and I pitches 'em a yarn. . . . .
The Duk, werry much infected, sent me down a fourpenny bit, and told me to call some day vhen he was out. No! sooner than I'd stoop to a Joey, I'd drive a cab on the Thames, or bail out the sea vith a mustard spoon." . . .

. . . . The tramp differs from the cadger, inasmuch as he works occasionally:—

"I'm a roving journeyman,
And I rove from town to town;
Wherever I get a job of work,
I'm willing to set down.

With my kit upon my shoulders,
And my stick then in my hand;
It's down the country I will go,
A roving journeyman.

But when I came to Carlow,
The girls all jumped for joy;
Saying one unto the other,
Here comes a roving boy.

One treats me to a bottle,
And another to a dram."

The tramps are usually drunkards:—

"Of such pals, oh! how sweet the communion,
From each other we never will roam;
While we keep ourselves out of the 'Union,'
We'll still have a drop at our home."

And they very often fall out with the parish authorities:—

"Who are you? Faith, I'm four-score next Lady-day, and so feeble I can hardly walk.—How the Devil did you get there? Faith, I walked, your Reverence.—Oh, then, if you are able to walk, and to go of errands, you may walk off. Oh, bad luck to me, if that a'nt the Poor-law.—Well, I know it is the Poor-law, and it must not be broken, because it has lately been amended. Ah, your Poor-law is like the Humane Society—all the good you do, is done with a hook!—What is all that noise about? Why, your Honour, it's the poor undone pauper's petition to Just Starve us:—

Hear, O hear us, our parish king,
Th' workhouse bell with fury ring;
All who love their children sing,
Hear us, O hear!
Then tell us what can be worse,
Than a hungry maw and an empty purse;
Mercy show, and pity us—
Great Overseer."

Those who believe that Teetotalism can regenerate the world, have their opinions strongly supported in the "Railroad to Hell; or, If you will, from Dissipation to Poverty, and from Poverty to Desperation," which, among other things, tells us:—

We've White and Black Bulls, and two Suns, in one street;
One Swan and two Lions which never taste meat;
And here you see women, with bottles and jugs,
Roll into these Taverns and Dram-drinking snugs,
As brazen as brass, to get an odd glass,
In some of these shops which a fool cannot pass."

There are some singular beings who think for themselves, and belong to no party:—

"Bob Peel pretends to rule the State,
But good he never did yet;
Jem Graham, I thinks him a hass,
And Harry Broom a hidiott.
Its if I could get in the House,
The thing I'd bet a guinea on,
I'd make 'em all shake in their shoes;
I'm for Freedom of opinion.
Tol de rol."

The following is from the pen of one who modestly says:—

"I think I'm a judge of music,
At least, so have been said."

It is certain, that he has an original idea of true poetry; or, at least, of that element which is one of its constituents—harmony:—

"There is music in man and woman,
Especially in man and wife;
There is music in a butcher
When he's sharpening of his knife.

There is music in a schoolmaster
When him flogging of the boys;
And there's music in a policeman
When the thieves do make a noise."

It really makes one feel sad to find so many of our good old English ballads so villanously parodied:—

"Joe Muggins was buried that very next day,
And Sally in less than a week;
When out of her ashes a carrot there grew,
And out of his bosom a leek, leek, leek.
And out of his, &c.

Now they grew and they grew to the top of the grave,
When they was'nt let grow any more;
For down they was cut to season the soup,
That was given away to the poor, poor, poor.
That was given away to the poor."

Of what manner of men are they who thus disfigure our old models?

"In a garret I show'd my nob,
In Earl Street, Seven Dials;
My father was a snob,
My mother dealt in wials.

But my mind took higher flights,
I hated low-life things;
Made friends with a cove wot writes,
And now I'm a chap wot sings."

[In concluding these extracts from the Diary it may here be mentioned, that the specimens now given from "the Literature of our Alley," are not so numerous as we originally intended. Some have been omitted in consequence of their irreverent allusions to sacred subjects; and concerning them it must suffice to say, that they appear to be the most graphic, and the least likely to be effaced from the memory. It may be asked, What has the Literature of the Alley to do with the business of education? In drawing attention to it, our object has been to afford some information upon a state of things, of which at present little is known, but with which it is requisite to become acquainted, before it is possible either to devise or apply a remedy. How great and extensive the evil is, can be but imperfectly inferred from the extracts we have given. Still, as it has been already observed by the writer of the Diary, some important particulars may be gleaned from them; such as, that the inhabitants of the Alley have a literature of their own, though they seldom read; and that that literature represents correctly their feelings and ways of thinking. Further we may collect, that, if they do not read, they certainly do not write, and that they therefore must have literary purveyors—writers and publishers—to provide for their peculiar tastes. These purveyors must act upon the same principle as those for the other classes of society—they must provide what is most likely to pay them best. And we find, accordingly, that the form of literature which best suits the Alley, is the ballad—a striking proof of the influence which poetry combined with music possesses over the human mind, even when most hardened and depraved. The principles introduced into these ballads are most immoral, and dangerous to society. Hence the obvious duty of instilling into the minds of the young principles of an opposite character, and of doing so under the most engaging and impressive forms. The fact, that the obscene ballad, which is sung and hawked in the alley, is first produced and tested as to its popularity in the night-house, shows how these hot-beds of vice spread their baneful influence abroad, and what timely care should therefore be taken to rescue the young at the very earliest moment from the moral pestilence which, as it were, floats in the very atmosphere which they breathe. This can only be done by gathering them into schools, and training their tongues, and attuning their ears to other sounds and words; and, as far as practicable, habituating their hearts and consciences to other impressions than such as must be produced by the effusions which we have quoted, and by others infinitely more noxious. The very thought of such poison being poured into the ears of thousands of young children, whilst their minds are yet, as it were, "prepared blanks," capable of taking any impression, and as pure and innocent as those of children more happily circumstanced, might suffice to rouse the least philanthropic to some exertions in their behalf. And, if the perusal of these extracts should induce a single individual to apply himself to such a task, or to increase his endeavours to fulfil it, we shall feel that we are abundantly justified in the course which we have taken in publishing them.]

ON THE CRUDE-FORM METHOD OF TEACHING THE CLASSICAL LANGUAGES.

(*Continued from Vol. VIII., p. 449.*)

In our last paper we dealt only with the substantives, but so far as regards declension, what was then said is applicable to the adjective. As regards the verbs, the question is exceedingly simple. No one will have any difficulty in assigning *ama*, *mone*, *reg*, and *audi*, as the essential elements in the conjugation of the verbs *ama-re*, *mone-re*, *reg-ere*, and *audi-re*. The only parts of the verb *amare* which fail to exhibit an *a* after the *m* are the first person *amo* of the indicative present, and the whole of the present subjunctive, *amem*, &c. But a contraction of *ama-o* into *amo* would be perfectly parallel to what is seen in the Greek grammar in *τιμαώ*, *τιμω*, and the compression of *ama-am*, *ama-as*, *ama-at*, &c. (which the analogy of *scrib-am*, *scrib-as*, *scrib-at*, &c., would have led us to expect) into *amem*, *ames*, *amet*, &c., is a matter of no extraordinary character, considering the intimate connection between a long vowel *e* and the simple *a*. A Greek scholar is of course familiar with this fact; and in the Latin perfect *eg-i* (as compared to the present *ag-o*) we seem to have a word which has been contracted from a perfect of reduplication *a-ag-i*. In the second conjugation we should have been able to trace the vowel *e* throughout all the deduced forms, if we had taken for our example any of the verbs, *fle-re*, *ne-re*, *de-le-re*, or *ex-ple-re*, for in these the perfect and so-called supines still exhibit an *e* in the base of the word. And even among those verbs which commonly form the perfect in *-ui*, as *moneo*, *habeo*, &c., the archaic forms, such as *habessit*, seem to imply an old perfect *habevi*; for *habessit* must have been a contraction of *habevesit*, just as *amasso* and *amassim* are admitted to be contractions from old forms, *amaveso* and *amavesim*, which preceded *amavero* and *amaverim*. Lastly, the conjugation of *audi-re* in no single instance fails to retain the *i*.

Thus, we reduce the four conjugations to the four heads, of verbs in *a*, in *e*, in consonants, and in *i*. The question here suggests itself, how is it that there are not six conjugations to correspond to the six declensions? in other words, what has become of the conjugations in *o* and in *u*? To speak first of the verbs in *u*: the class exists, and as examples of it may be taken the verbs *nu-ere*, *plu-ere*, *acu-ere*, *metu-ere*; but the vowel *u* is rarely subject to contraction with a following vowel, so that it was found unnecessary to separate verbs of this class from those which ended in a consonant. On the whole, however, it is perhaps desirable, for simplicity's sake, to make a *u* conjugation; and, in fact, in the third person of the plural of the present indicative these verbs have a peculiarity which distinguishes them from such verbs as *reg-ere*, *scrib-ere*; we mean that *metuunt* and *sequuntur*, though supported by the authority of our grammars and ordinary editions, are not so legitimate, if manuscripts are to be trusted, as *metuont* and *secuntur*. Secondly, an advantage is gained by the separation of verbs in *u* from verbs in a consonant in the complete analogy of the perfects *col-ui*, *audi-vi*, *ne-vi*, *ama-vi*, *gno-vi*, *plu-vi*, where we have the same suffix added without distinction to a verb ending in a consonant, and to verbs in all the five vowels, *i*, *e*, *a*, *o*, *u*. *Pluvit* was the only perfect known to Livy; and the older writers generally adopted either the form *annuvit*, or at least *annuit*, with a long *u*, thus distinguishing the perfect from the present. But there still remains a vacancy caused by the non-appearance of a class of verbs in *o*. Such vacancy can only be filled by a wretched remnant of a conjugation. The forms *gno-vi*, *gno-tum*, (*novi*, *notum*,) the participles *potus* and *aegrotus*, all point to bases in *o*, viz. *gno-*, *po-*, *aegro-*. The present of the first has chosen to take to itself the termination of an inceptive *gno-sc-o*. That there was once a verb *po-*, 'drink,' is proved by the substantives *po-tion-*, *po-culo-* (nom. *potio*, *poculum*), by the frequentative *po-ta-re*, and by the Greek πω-σω, πεπω-κα. Again, a verb *aegro-o* from the adjective *aegero-* (nom. *aeger*, *aegra*, &c.) would be in perfect keeping with the Greek verb δουλο-ω, from the noun δουλο- (nom. δουλος). Unfortunately, there was a tendency in the Latin language to force all those verbs which are formed from substantives or adjectives of the second declension into the first conjugation. Thus, from the substantives *dono-*, *domino-* (nom. *donum*, *dominus*), and from the adjectives *misero-*, *denso-* (nom. *miser*, *densus*) were deduced the verbs *dona-re*, *domina-ri*, *misera-ri*, *densa-re*. The readiness which exists in the Latin language to interchange the vowels *a* and *o* is well seen in *ignora-re*, from an adjective *ignaro-* (nom. *ignarus*), while the simple adjective *gnaro-* (nom. *gnarus*), grows out of a root *gno-*.

The application of the crude-form system to verbs was virtually adopted in the Latin grammar which was used in the Charter House during the headship of the Rev. Dr. Russell, as the three conjugations of *amare*, *monere*, and *audire* were treated as contract verbs, *amao amo*, *amais amas*, *amait amat*, &c. It has at times been objected to this view that a contraction of *amait* to *amat* ought to have led to a long vowel in the last syllable of *amat*. The argument is valid, but yet no way damages the theory, for the syllable was originally long, as indeed is seen in the passive *amātur*, *monētur*, *audītur*, whereas from *regĭt* comes *regĭtur*. It is thus that the old writers, as Plautus, Terence, &c., never hesitate to treat the third person of a tense as having a final long syllable, whenever the corresponding vowel is long in the first and second persons of the plural. Examples may be seen in the prolegomena to Ritschl's Plautus, p. 182, &c., such as *velīt*, *audiēt*, *fit*, *solēt*, *attinēt*, *habēt*, *sīt*, *dēt*, *fuāt*, *mavelīt*, *afflictāt*, *egēt*, *desiderēt*, *īt*, *lubēt*, though followed in every example he quotes by a word with an initial vowel. There are not wanting similar examples in Virgil and Horace, but editors and teachers complacently get over the difficulty by attributing the unusual length to the so-called principle of cæsura. What therefore at first view appeared as a defect in the theory of crude-forms, only tends to prove the validity of the system.

In the irregular verbs the system of crude-forms has its usual superiority. The conjugation, for example, of the so-called substantive verb, in both Greek and Latin, becomes more intelligible, and therefore more easy to remember, when attention is paid to the form of the base. *Sum* and *ειμι*, when examined by themselves, appear utterly unconnected; but a light is thrown even upon these, and still more decidedly on many other parts of the conjugation, when *es* is regarded as the point of departure. Varro, for example, tells us, that *esum, esumus, esunt*, were the old forms, which, losing their initial vowel, became severally *sum, sumus, sunt*. That *εσ-μι*,* in Greek, should be changed to *ειμι* was to be expected, from the habitual tendency of that language to suppress the sibilant. Further, an attention to the crude-form *es* at once explains the so-called adjectives, but really participles, *absens, præsens*, which are but reduced forms of *ab-es-ens, præ-es-ens*. Again, the beginner in Greek is somewhat confused at times by the similarity in many parts of the verbs *ειμι*, "I am," and *ειμι*, "I go." He will have most of his doubts at once solved by the knowledge that the former has *ες*, the latter *ι*, for its base.

We now pass from the familiar matters of declension and conjugation to a part of grammar usually much neglected—the general doctrine of derivation; and we shall still find that the crude forms of nouns and verbs give us a safer foundation on which to build. Thus, from the substantives *civi-, fide-, vita-, tribu-*, we more readily proceed to the adjectives *civi-li-, fide-li-, vita-li-, tribu-li-*, than we can from the nominatives *civis, fides, vita, tribus*. Still more decided is the advantage in deducing directly from the crude forms *mari-, Roma-, belio-, tribu-*, rather than from the nominatives *mare, Roma, bellum, tribus*, the derivatives *marino-, Romano-, Bellona-, tribuno-*. Again, the diminutives *navi-cula, virgun-cula*,† *die-cula, su-cula, ratiun-cula*, are at once referred to the crude-forms *navi-, virgon-, die-, su-, ration-*. So also the doctrine of quantity gains much in simplicity if we take our departure from the crude forms. Thus, *lenī-mentum, supplē-mentum, delirā-mentum, cognō-mentum, argū-mentum*, which retain the vowel of the verb, have all of them that vowel long; whereas *al-ĭ-mentum, teg-ŭ-mentum* and *doc-ŭ-mentum*, having no original claim to a vowel *i* or *u*, but employing it merely as a sort of connecting sound, are not permitted to dwell upon it.

The light which the study of Latin throws upon the etymology of our own tongue is a secondary but still an important consideration. Here again the crude-forms have a marked advantage over the nominatives. Thus, our English adjectives *re-al, reg-al, gradu-al, manu-al, vertic-al, nation-al*, are less easily referred to the nominatives *res, rex, gradus, manus, vertex, natio*, than to the crude forms, which present themselves at once to the eye. The same, or nearly the same, is true of the words *lapid-ary, avi-ary, sanguin-ary, salut-ary, station-ary*.

We shall next proceed to examine the proposition that all the Latin declensions in reality belong to one type. In the process of word-building the chief difficulty arises from the fact, that if vowels are brought together, contraction commonly results; while if consonants are placed in juxta-position, the one or the other is frequently modified, so as to harmonize with the other. Hence it follows, that where the choice presents itself, we should select for our first consideration those forms where, of two syllables brought into contact, either the first ends in a consonant and the second begins with a vowel, or *vice versâ*, where a vowel at the end of the first is followed by a consonant at the beginning of the second. Now it so happens, that among the suffixes which have the office of denoting cases, the majority commence with a vowel. Hence the consonant declension for the most part exhibits the cases in a fuller and less modified form. Thus, to take the accusative; *reg-em* assigns a whole syllable to the case-ending, whereas in *turri-m*, *die-m*, *musa-m*, *servo-m*, (or *servu-m*), *gradu-m*, a vowel has been lost. The same applies to the plural accusatives *reg-es*, *turri-s* (*turres*), *die-s*, *musa-s*, *servo-s*, *gradu-s*. Similarly in the ablatives of the singular, *reg-ĕ*, *turrī* (*turrĕ*), *diē*, *musā*, *servō*, *gradū*, the first gives us a letter *ĕ* as the representative of the case, whereas contraction absorbs this vowel in all the vowel declensions, yet at the same time leaves a trace of the same termination in the length of the final vowel, as arising from contraction. The genitival *is* of *reg-is*, would lead us to expect from analogy, *turri-is*, *die-is*, *musa-is*, *servo-is*, *gradu-is*, not one of which occurs. This fact at first sight appears somewhat fatal to the theory; but a closer inspection will remove much of the difficulty, and the satisfactory removal of a difficulty ought to be held a strong confirmation of a theory. Now the forms *gru-is*, *su-is*, *anu-is* (the last in Terence) really exhibit what is demanded; and the long *u* in *gradus*, gen., has always been held to be the result of contraction from *graduis*. Secondly, in the first and fifth declensions the older language has at least two forms, *musai* and *musas* (as in *pater-familias*, to say nothing of the Greek gen., σοφιας); *diei*, *dies*, and *die*. Now it is evident that all these varieties would grow out of *musa-is* and *die-is*. By the loss of the *s* we obtain *musai* and *diei*, and then by an ordinary contraction *musae* and *die*; while the absorption of the *i* in *musais* and *dieis*, gives us *musās* and *diēs*. In the second declension, although *servo-is* is unknown, yet in *nullius*, or rather *nullo-ius*, we get even more than the suffix wished for; and a termination *us* harmonizes better with the Greek genitival suffix *os* than the ordinary Latin suffix *is*. Thus in the celebrated Bacchanalian inscription we find *senatu-os* for the genitive of *senatu-*. But there still remain the genitives *avis*, *turris*, which refuse even in their quantity to justify the theory of a previously existing *avi-is* or *turri-is*. The explanation probably is this: the Latin language had some twenty verbs, which blended together the third and fourth conjugations, as *facio*, *jacio*, *orior*, *gradior*, which in the first person singular and third plural follow the analogy of the fourth, but in the other persons that of the third conjugation. Nay, as we look further and further back into the language, we find such forms as *parire* for *parere*, *morīmur* for *morĭmur*, *evenat* for *eveniat*, &c. Similarly in the declensions they seem at times to have had double forms, one ending in a consonant, one in the vowel *i*. Thus by the side of *navi-*, a ship, we may assume a shorter form *nav-* or *nau-*. Compare the Greek ναυ-ς. Thus *nav-is* would be a legitimate genitive, and *naufragus*, *nauta* need not be deemed contractions from *navi-fragus*

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* The modern Lithuanian, or the language now spoken around Memel and Riga, conjugates its substantive verb, *esmi, essi, esti*, &c.

† Zumpt, through looking to the nominatives, speaks of *virguncula* as formed by the addition of a suffix *uncula*.

navi-ta. So *au* in *auceps*, *auspex*, may have been an original base, signifying "bird," from which the gen. *av-is* with a short *i* is regularly formed. In fact, we have probably in this tendency to double forms the explanation of the confusion by which the Romans themselves were led to force the nouns ending in a consonant and those ending in a vowel *i* into a common declension.

In the genitives plural *die-rum*, *musa-rum*, *servo-rum*, we have a common suffix; while in *reg-um*, *avi-um*, *gradu-um*, we only miss the *r*, the addition of which would bring them into perfect agreement with the preceding trio. Now this *r* really represents the *s* which formed the essential part of the genitival suffix in the singular, it being a law of the Latin language to change an *s* into *r*, whenever it is thrown between vowels, as in such neuters as *opus*, *operis*, in the verb *esse*, *eram*, *ero*, &c. But this *s* of the genitive is itself lost in *musai*, *musæ*, in *servi*, in *Ulixi*, *Achilli*, *Cleomeni* (for *Ulixis*, *Achillis*, *Cleomenis*), and in *diei*. Hence there is nothing very surprising in the disappearance of its representative *r* in the plural. Besides, *cælicolum*, *amphorum*, *nummum*, *duum*, and even *dieum*, *specieum*, are more or less familiar contractions for *cælicolarum*, *amphorarum*, *nummorum*, *duorum*, *dierum*, *specierum*. Lastly, it is a well-known fact that *nucerum*, *boverum* were the old forms of *nucum*, *boum*. And these two words, by the way, justify the theory at which we have hinted already, that the plural cases are in reality formed from the singular genitive by the addition of a suffix for plurality. Thus *nucer* and *bover* of the two archaic forms, *nucerum*, *boverum*, represent the singular genitives *nucis*, *bovis*, precisely as from the base *cinis* or *pulvis* we have a genitive *ciner-is pulver-is*. Thus *musarum* is for *musas-um*, of which *musas* is an old genitive singular. In the Greek language this *s* falling between vowels is of course lost as usual, and we have *μουσαων* instead of *μουσασ-ων*.

What we have said of the plural genitive being formed directly from the singular genitive has its parallel in the accusative. Thus *musam*, *servom* should be considered as the Latin mode of writing what would have appeared in Greek as *musan* and *servon*. The addition of an *s* as the symbol of plurality would have given us *musans*, *servons*; but as *n* was never pronounced before the consonant *s*, it was at last omitted in writing, and so there arose *musās servōs*; but of course with a long vowel. In the Cretan dialect of the Greek language, such a form as δουλονς for the accusative plural was in ordinary use; but the Attic dialect substituted δουλους precisely as the nominative of οδοντς became, not οδονς, but οδους.

The Latin dative *reg-i* would suggest other datives *avii*, *diei*, *musai*, *servoi*, *gradui*. Of these *diei* and *gradui* occur in the ordinary language; *musai* is an archaic variety of *musae*; and even in the second declension *quoi* (Cicero's mode of writing *cui*) exhibits the desired form. But *gradui* and *diei* are often contracted into the dissyllables *gradu* and *die*. Moreover the Greek grammar habitually so far suppresses the final *i* as to make it subscript, which seems very like retaining it as an etymological symbol, while in pronunciation it was altogether destroyed. Hence *servō* agrees substantially with δουλῳ. Besides, the Latin datives *nulli*, *utri*, &c., are evidently representatives of *nulloi*, *utroi*, as *nullius*, *nulli*, nom. pl., *nullis*, stand for *nulloius*, *nulloi*, *nullois*.

We have said that *i* is the ordinary suffix of a singular dative. An older form must have been *bi*. Such is seen in the so-called adverbs, but originally datives, *i-bi* (nom. *i-s*), *u-bi* (or *cubi*, as seen in *si-cubi*, *num-cubi*, *ne-cubi*, from the relative), *ali-bi* (archaic nom. *ali-s*), *utro-bi* (nom. *uter*) *ubi-que* (nom. *quisque*), *sibi*, *tibi*, *no-bi-s*, *vo-bi-s*; secondly, in the plural datives *reg-i-bus*, *avi-bus*, *die-bus*, *equa·bus*, *duo-bus*; thirdly, in the Homeric datives *ι·φι*, *βιη-φι*, *ουρανο-φι*, *στηθεσ-φι*; fourthly, in the Sanscrit datives of the dual and plural, *nau·bhy·am* and *nau-bhy·as* from *nau* "a ship," as well as the plural instrumental case *nau-bhi-s*. But if it be admitted that a *b* once belonged to the dative suffix, it remains to be explained how it came to disappear, as in *musis* and *servis*. This objection will be answered if it be shown that those very forms which long retained a *b* have since lost them. Now the four little words, *tibi*, *sibi*, *ubi*, *ibi* have all lost the labial in the French derivatives *toi*, *soi*, *ou*, *y*. Again, the three prepositions *ab*, *sub*, *ob* are subjected to the same curtailment in *a*, *asporto* (for *abs-porto*), in *suspendo*, *suscito*, *sustollo* (for *subs-*), in *ostendo* (for *obs-tendo*) and *omitto*. The two verbs *jubeo* and *habeo* also lose their *b* at times, the first in *jussi*, *jussum*; the second in the derived substantive *a-mentum* for *habi-mentum* "something to hold by," and also in the French present *j'ai*, *tu as*, *il a*, *ils ont*. The persons *avons*, *avez*, do indeed retain the *b* virtually in the form of a *v*; but when the French add this present tense to the infinitive in order to make a future: "I have to ——," the syllable *av* falls off from both *av-ons* and *av-ez*, as seen in *finir-ai*, *finir-as*, *finir-a*, *finir-ons*, *finir-ez*, *finir-ont*. Similarly, the conditional of the French verb is always made up by attaching the past tense *avais*, &c. to the infinitive, but in this process the syllable *av* again disappears, and we have *finir-ais*, &c. The German verb *hab-en* and our own *have* suffer in the same way. Thus the German *haben*, in the present, exhibits *hat* not *habt*, and in the past tense *hatte* not *hab-te*; while we say *has*, *had*, rather than *haves*, *haved*.

Hence with a knowledge that the *b* in Latin words had no safe footing, we may boldly infer that from an old dative *musa-bi* were formed first *musai* and ultimately *musae*; and from a plural *musa-bi-s*, on the one hand *musa-bus*, on the other with the loss of the *b*, *musais*, *musis*. For the vowel changes, compare the three words *quairo*, *quaero*, *inquiro*.

The nominative has been reserved to the last, because it contains what has been deemed by some a grave difficulty. Although *s* is visibly the suffix of the nominatives *reg-s* (*rex*), *avi-s*, *die-s*, *Aenea-s*, *servo-s* (*servus*) *gradu-s*; yet it has been objected that neuters, with few exceptions, are without the final sibilant, that the same is true of nearly every nominative of the first declension, of such words as *puer* in the second, and of *pater*, *consul*, *ordo*, *ratio* in the third declension.

With regard to neuters the identity of the nominative and accusative in every instance is a difficulty which must attach to every grammatical system, as much as to that founded upon crude-forms. Perhaps the cause may lie in this, that in the simplest form of sentence, viz., one consisting of a nominative, a verb, and an accusative, as *dominus servum caedit*, the action expressed in the verb proceeds from the nominative to the accusative, from the master to the slave; and so the idea of the nominative in origin was identical with that of an agent. But an agent having life must of necessity be either masculine or feminine. Thus a neuter noun would have no claim to serve as a nominative, and consequently could not in strictness be entitled to the nominatival suffix, *s*.

The *s* * in the first declension, it must be admitted, is only found in masculine nouns, and even they are of foreign origin, as the word above quoted, *Æneas*. Still there is so close a connection between the first declension of the Latin and the first declension of the Greek language, that anything proved for the one has a bearing upon the other. Thus, the *s* of *ταμιας* and *πολιτης* leads to rather a strong belief that the Latin also must once have possessed such a letter, although no longer found in what is left of the language. But it has been said that the office of this *s* in the Greek words is not that of denoting a nominative, but to mark a gender. The assertion is founded solely on the accident that the masculine nouns take an *s* in the nominative, which the feminine nouns have discarded. But even the masculine nouns appear without this letter in many phrases of Homer, as *νεφεληγερετα Ζευς, μητιετα Ζευς, ἱπποτα* Νεστωρ, &c.; and Cicero too preferred the forms without a sibilant in the Greek words *Archyta*, *Aristagora*, as well as in the names of his countrymen *Sulla* and *Cinna*. Moreover, an argument such as that of the Greek grammarians might just as well be used in proof that *s* in Latin is a mark of the feminine gender, seeing that of *acer, acris, acre*, the middle form *acris* is generally feminine. We have a parallel error in the Icelandic grammarians. This language, it is well known, has a general tendency to employ the letter *r* where the classical and other kindred languages have an *s*. Accordingly an *r* is found as an ending of many nominatives; but it happens to be limited for the most part to those of a masculine gender. Hence, in § 141 of his grammar, Rask calls it the sign of the masculine. Unfortunately for his doctrine *ku*, "a cow," *su* "a sow" also take an *r* to form the nominatives *kyr*, *syr* (§ 170); and, in § 159, he has the candour to say: "In the oldest times there were also many feminines in *r*, e.g. *ædr*, 'a vein,' afterwards *æd*, *elfr* 'river,' afterwards *elf*," &c. But a comparison of the Greek and Latin Grammars will present us with evidence to prove that even feminine nouns were not averse to the nominatival *s*. In the Greek language, it is the ordinary doctrine that *σοφια* and *σοφιη* are but dialectic varieties of the same word. If we may extend the same doctrine to the Latin language, we are entitled to say that there is no substantial distinction between *luxuria* and *luxuries*, *tristitia* and *tristities*, *materia* and *materies*, words which (as Madvig observes) rarely form their genitives, datives, and ablatives after the model of the fifth declension.

We next consider those nouns whose crude form ends in a liquid, as *pater*, *consul*, *ratiōn*, or *ordōn*. Our theory as regards these words is, that the *s*, originally added, was first assimilated to the preceding liquid; that by a second change one of these two liquids was dropped, but so dropped that the preceding vowel by its increased length was made to compensate for the loss; and thirdly, that this long syllable was finally deprived of its length. A triple assumption, such as this, of course requires strong proof in the way of analogy. Now the four Greek verbs *σπειρω*, *στελλω*, *φαινω*, and *νεμω*, have for their respective bases the syllables *σπερ*, *στελ*, *φαν*, and *νεμ*. From these, if the regular formation had been followed, we ought to have had, as first aorists, *εσπερσα*, *εστελσα*, *εφανσα*, *ενεμσα*. Assimilation would have changed them to *εσπερρα*, *εστελλα*, *εφαννα*, and *ενεμμα*; and again, the suppression of one of the liquids, together with the fitting compensation by increase in the length of the vowel, would give us, what is actually found, *εσπειρα*, *εστειλα*, *εφηνα*, *ενειμα*. Secondly, as the feminine of adjectives ending in a consonant was often formed by the addition of the syllable *σα*, e.g. *τυπτου-σα*, *χαριεσ-σα*, *φοινισ-σα*, for *τυπτοντ-σα*, *χαριεντ-σα*, *φοινικ-σα*; so from the crude forms *μακαρ*, *ταλαν*, *τερεν*, should have been formed *μακαρ-σα*, *ταλαν-σα*, *τερεν-σα*, which, if our view be correct, passed through an intermediate *μακαρ-ρα*, *ταλαν-να*, *τερεν-να* to *μακαιρα*, *ταλαινα*, *τερεινα*. Thirdly, the Latin superlative ended commonly in *sumo-* or *simo-*; but in *acer-rimo-*, *deter-rimo-*, *simil-limo-*, the *s* has assimilated itself to the preceding liquid, *r* or *l*. Fourthly, the Latin infinitival suffix *ĕre* appears to have grown out of an older form *ĕse*, as seen in *es-se* "to be," (for *ĕs-ĕse*). This view is confirmed both by the universal habit of the old language to present an *s* between vowels where the later language preferred *r*, as in *Fusius*, *asa*, afterwards *Furius*, *ara;* and by the occurrence of a passive infinitive *dasi* (see Forcellini), which of course implies an active infinitive *dase* for *dare*. Hence in *vel-le*, *nol-le*, *mal-le*, we have in *le* a substitute for an older *re* and that for *se*. Fifthly, in the Icelandic tongue, as we have already said, an *r* instead of an *s* is the ordinary nominatival suffix of masculine nouns. But when such a noun ends in *n* or *l*, the *r* is at times assimilated, so that from a base *ketil* "kettle," *graen* "green," *span* "spoon," we have the nominatives, *ketill*, *graenn*, *spann*. Again, some words whose base has a final *r*, as *dör* "spear," are not afraid to take a second *r* in the nom. as *dörr*. And if the base ended in *s*, the old language at times added a second *s* for the nominative. Thus, from *ís* "ice," *laus* "loose," were formed old nominatives *íss*, *lauss*. (Compare the theoretic nominative *pulviss*, which was mentioned above.) But in the later language there was a tendency to discard one of two similar consonants at the end of a nominative; and thus what was a virtual symbol of the nominative wholly disappeared. In § 139, of Rask's Grammar, it will be seen that the nouns which were thus truncated had a base ending in the letters *r*, *l*, *n* and *s*; *i. e.* the very endings which are subject to the same mutilation in Latin. Sixthly, the Icelandic verb in the third person regularly takes an *r* corresponding to the *s* of English, as from the base *tel* "tell," *hann telr* "he tells;" yet from *skín* "shine," the old writers preferred *skínn* for *skínr* "shines," and this *skínn* afterwards became *skín* (§ 93). Seventhly, the genitive plural in Icelandic has regularly a suffix *ra*, (corresponding to the Latin *rum*, and so a corruption of *sum*,) yet from *hin* "the," and *gamal* "old," the gen. pl. is *hin-na*, *gamal-la* (§ 93). Eighthly, the ordinary termination of the neuter comparative in Icelandic is *ara* or *ra*,* as *kaldara*, "the colder;" but from *vaen* "fair," *sael* "happy," are formed the comparatives *vaen-na*, *sael-la* (§ 199).

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* The greater part of this argument is taken in substance from an article in the "Classical Museum," No. xix. p. 59.

Lastly, we will observe that the Latin language is very apt to discard any *s* which follows an *r*. Thus for *videbaris*, *videreris*, they often wrote *videbare*, *viderere*. Again, although the analogy of the Greek, δις, τρις, the Latin *bis* (duis), and our own *twice*, *thrice*, would have led us to expect *tris* and *quatris* in Latin, yet we find nothing but *ter* and *quater*. It is therefore no matter for surprise, if instead of *puerus*, *paters*, *lintris*, we find *puer*, *pater*, *linter*. But the Greek nominatives πατηρ, χειρ, τερην, from the several crude-forms πατερ, χερ, τερεν, exhibit the long vowel of compensation; and so also does the Latin more frequently than is commonly believed, as *patēr* in Virg. Æn. v. 521; xi. 469; xii. 13,

> "Ostentans artemque pater arcumque sonantem.
> Concilium ipse pater et magna incepta Latinus, &c.
> Congredior. Fer sacra pater et concipe foedus."

In the plural nominative a comparison between *reg-es* and the forms exhibited in the other declensions leads us to the conclusion that *avīs* (archaic), *gradūs*, and *diēs* have all by contraction lost an *e* before the final *s*, whereas *musae*, standing for *musa-es*, has lost the sibilant itself. Lastly, *servi* (δουλοι) must be considered as contracted from *servoi*, or rather to follow the later Latin orthography, *servoe*, and this reduced from an obsolete *servo-es*.

Thus all the Latin declensions appear to have been moulded upon one common type. It is true, that much of what we have said to establish this doctrine is of a nature ill-suited for the study of young pupils. But even for them it would be a most useful practice to tabulate the ordinary declensions in parallel columns together, and then commit them to memory, not only in the vertical order, as is now the practice, but also in horizontal lines, so as to take in succession the same case of all the nouns. Thus they would repeat in order: gen. pl. *reg-um*, *avi-um*, *die-rum*, *ala-rum*, *avo-rum*, *acu-um*. We have purposely suggested these short triliteral bases, that a complete table may be got within the limits of a page.

ON THE PERVERSION AND CORRUPTION OF WORDS.

(*Continued from Vol. VIII., page* 452).

In the same way the zealous Episcopalian Donne, in one of his sermons, resists the obnoxious usage, by appealing to the origin of the word.

"Men and brethren, I am a Puritan, that is, I will endeavour to be pure as My Father in Heaven is pure, as far as any Puritan."

Indeed, the sudden vindication of a word, which has been long crippled by limited usage, has often a most powerful and felicitous effect. Thus Burke, in his letter to a noble lord:

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* This suffix in the Moeso-Gothic has a sibilant in lieu of the liquid *r*.

> "It is little to be doubted that several of his forefathers, in that long series, have *degenerated* into honour and virtue."

"A senseless word," says an historian of Italy, "or an accidental emblem, was a sufficient excuse for the indulgence of the most odious passions." We cannot help thinking that, when used as the watchword of party, the more senseless the term the better. No single word of moral import, without a gross violation of its proper meaning, could contain all the bitterness, all the scorn, all the implied evil, which one religious or political party would fain heap, in a single word, on its opponent. Every colour which could be reared as a standard of faction has been incarnadined into "one red," in the bloody disputes of Prasini, Veneti, Bianchi, Neri, Orange and Blue. We have read of the Shanavests and Caravats in Ireland, and it is surely better that the name of a tint or garb, or some foolish byword, should be thus abused, than that any moral term should be perverted from its true meaning to serve the purposes of temper and prejudice. Human malignity taints whatever it touches. Its effect on our diction will probably have been observed by all persons of education in individual instances, but there may be some novelty in showing how far, whilst we have been abusing our fellow-creatures, we have been abusing our language, and in the process "sincerum vas incrustandi," how doubly successful we have been.

Not content with availing ourselves of what moralists call the *vicina vitia*, or with the censorious powers of gesture,

"The annotations of grimaces,
And sharp remarks of leering faces,"

we have been perpetually, and to an extent little thought of, converting words originally of indifferent, occasionally even of favourable signification, into vehicles of ridicule and opprobrium. The racy low Dutch, Danish, and other northern terms of vilification, which really meant something, and were honest and straightforward enough, have been gradually becoming obsolete, but, to use the words of Ben Jonson,

"Since there will be differences daily
'Twixt gentlemen, and that the roaring manner
Is grown offensive,"

we have been supplying their place with words originally intended for milder purposes. We fear, indeed, that we cannot altogether attribute this to a desire of euphemism, as nurses teach children (very improperly) to call lies, stories. We might perhaps assign it to accident, were it not unfortunately the case, that where five words of originally neutral import are used with a leaning towards charity,* five times as many have received the stamp of the beast. The tongue is a fire, and out of the ploughshares of peace and out of the blunt, ponderous weapons of our ancestors, it can forge instruments of offence, more smooth, more keen, more pointed, and more befitting an age of courtesy.

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* How few of these occur to us, *happy* from hap, either good or bad. *Fond* from *fonne*, to be weak; in old writers, and in the North, it is still used in the sense of foolish. *Patient*. *Ecstacy*. "*Character*," either good or bad; but "a man of character" now always favourably. "*Quality*," either good or bad; but "a person of quality," favourably; so "a person of *fashion*;" *noble*, favourably known; *incapable*, neutral in sense; but now for the most part used only as "incapable of

But these perversions of language had an early commencement. The enraged rustic in Virgil uses as an engine of wrath whatever comes first to hand, "furor arma ministrat;" and the not very intelligent feudal superior, wanting some term of contempt to apply to his subjects, can find nothing worse to reproach them with than their condition: so his* villein becomes our *villain;* the ceorl, a *churl;* the captive, a caitiff; the cowherd,† a coward; the follower, a fellow; the colonus, a *clown;* the poor solicitor for life or for alms, a *craven;* who, if he lower his head to implore the boon, becomes a *lout:* the emotions of his mind, sad, sorry, pitiful, become terms of contempt. What did the "blackguard" signify? merely the menial servant who appears "to have attended to the removal of goods and kitchen-stuff from mansion to mansion." (See Dyce's "Webster," vol. i. page 20.) We could, if it were necessary, add other instances of a similar kind.

Of the names of nations and tribes, how many have been turned into mere terms of contumely; Goth, Tartar, Gascon, Sclave, Yankey, Bulgarian, Myrmidon, Brigand, Jew, Greek. From the exclusive Greek how readily was borrowed the term, Barbarian; from the exclusive Jew, the term Heathen. On the contrary, if we except Attic wit, Attic elegance, we seldom find a single national name used generally as a word of commendation. As we are writing only one instance occurs to us; where Shakespeare finely says,—

> "He was disposed for mirth, when on a sudden
> A Roman thought hath struck him." (*Antony and Cleopatra.*)

And this is put into the mouth of a Roman.

It is true, no doubt, that the servile condition produced to a certain extent degradation of habits and sentiments; and that the nations above enumerated have had their unpleasant characteristics; but, in applying the names of conditions and nations as generic terms of invective, we have certainly been far more diligent than were the civilized nations of antiquity, who nearly confined themselves to Carian worthlessness, Bœotian dulness, Punic or Cretan treachery, and Solœcian blunders. We can account for and almost excuse the jealousy and contempt of close neighbourhood: nothing can reconcile the Norwegian to the Lappe, the Esthonian to the Russian, the Dutchman to the Belgian, and

> "Well does Spanish kind the difference know
> 'Twixt him, and Lusian slave, the lowest of the low."

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evil." "*Shrewd,*" from "shrew," to curse, has passed from a term of reproach to one of commendation.

* Against these we may perhaps set "cniht," which, from signifying merely a youthful attendant, was dignified into knight. How the word "hilding," which implied nobility, became an opprobrious term, we do not undertake to say.

† Coward is generally spelt cowherd by Spenser, Chapman the translator of Homer, and other old writers.

But it is to be hoped that an enlarged commerce and extended intercourse will not lead us to swell our vocabulary still more with terms of contumely,* coined by desecrating national appellatives.

Some of our abuse we borrow from our diet, as "cake" and "pudding-headed fellow," though these are happily becoming obsolete. We are more largely indebted for vituperatives to the animal kingdom; and here we may observe a remarkable difference between our practice and that of our ancestors, who exhibited greater ingenuity; for, whilst we adopt the simple names of the inferior animals, as goose, ass, monkey, &c., their words implied an addition of some defect. Thus "trashy," "trash," an untrained dog requiring to be kept in traces; "quean," a bad cow; "rascal," a lean dear; "coystrel" and "haggard," an inferior hawk; "vixen," a she fox †; and so on.

But by far the most mischievous and irrational perversions of language are those where words of a more abstract kind, originally innocent or of favourable import as far as we can ascertain their etymology, have gradually been obtaining an offensive signification, and that without any assignable reason. The scurrility of Aristophanes and Rabelais, the raillery of Cicero were *really* significant of the censure they were designed to convey; but, in modern English, a considerable volume of abuse might be written in terms, which if traced to their origin would prove pointless if not complimentary.

Little did the respective authors of the following passages anticipate the limitation which ignorance and ill-temper would gradually place upon their language. Would, then, Sir H. Temple have written thus? "Temperance, that virtue without pride, and fortune without envy, that gives *indolence* ‡ of body, and tranquillity of mind." (*Treatise on the Gout.*)

Or would Hooker have commended church music as "stirring up *flagrant* ‖ *desires* and affections?" (*Eccl. Pol.* b. v.); or Sir Walter Raleigh have spoken of "that § *notorious* prince Henry the Fifth?" (*Tract on the Prerogative of Parliament*); or Bracton have preached to his congregation "that the apostles were inflamed with *cunning* ¶ by the Holy Ghost?" (*Paston Letters*). Or would Lord Bacon, in his letter to Sir Henry Saville, and elsewhere, have united "*conceit* **" with memory and judgment in his summary of the intellectual powers, had he anticipated that future uncharitableness would fill up the ellipse in the manner indicated by Barrow in the following passage—"Quietness signifieth humility, modesty, and sobriety of mind; *that we conceit not ourselves more wise than our neighbour*" (*Sermon on Quietness and Doing our own Business*); for some such phrase must have been constantly implied, before the term could pass current according to its present usage.

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* The universal-peace-party, both commercial and sentimental, have already received some broad hints on this subject. It is scarcely fair to dip the iron pen in the bitterest gall, and after pricking severely Austria, Russia, or Prussia, as the case may be, then to yell against bayonets and the atrocious and ungentlemanlike character of an appeal to physical force. Let Cobden and Co. attend to their "Watts."

"Hard names at first, and angry words,—
Which are but noisy breath,—
May turn to clubs and naked swords,
To murder and to death."

† Lion is, almost, the only animal name used complimentarily, except, perhaps, stalwart, applied to the knight himself; but first to his steed, as *stall worthy*.

‡ Properly, painlessness.

‖ Properly, ardent, burning.

§ Properly, well known.

¶ Properly, skill, knowledge.

** Properly, conception.

There is surely no occasion to confine "*ominous*" merely to prognostications of evil; or "*exaggeration*" to the magnifying power of mendacity; nor "*artful*," and "*artifice*," to mischievous fabrication. Why is "*retribution*" only to be the return of evil for evil, for it is thus becoming gradually limited, when it might just as reasonably imply the recompense of good for good? We would have said "*retaliation*"—the return of like for like;—but, unfortunately, this word also has for a still longer time received a one-sided appropriation for the worse.

"Silly," in its primary sense, means no more than innocent; and what does innocent mean?—not hurting; but we are scarcely safe here, for the word was early perverted* to signify a fool or a natural; but why a "*natural?*" What is the ellipsis which should be supplied here? Another synonym would, we suppose, be—a "*simple*" fellow—a man *sine plicâ*, without a fold, free from what one of our poets has called "plaited cunning;" but truly a man can neither afford to be simplex, duplex, nor complex. If he is simplex, he is a fool; if he is duplex he is a knave, or double-minded (for the last signification we should allow to "*duplicity*," would be twofold merit of any sort, though there is nothing in the nature of the word to prevent the kindlier application of it). "*Complicity*" is only used to import combination with the guilty: so an "*accomplice*" is not only a rogue, but a companion of rogues. The poet Churchill describes a man who can

In public eye be with one set,
In private with a second herd,
And be by proxy with a third.

If this character were common we should doubtless soon have "*triplicity*" ready for the three-faced human Cerberus. But it is not safe to have a "face" at all; because it often signifies not only a face, but an unabashed and daring one:

You'll find the thing cannot be done
By ignorance and "*face*" alone,†

says Butler in Hudibras; but it is equally impudent not to have a face, or at least a forehead, for, says Dryden,

"*Frontless*" and satire-proof he scours the streets,
And runs an Indian muck at all he meets.

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* When Henry VII. wanted Pope Julius to canonize Henry VI., "The Pope, knowing that King Henry VI. was reputed in the world abroad but a simple man, was afraid it would but diminish the estimation of that kind of honour if there were not a distance kept between *innocents and saints*."—*Bacon's History of Henry VII.*

† We must have the fairness to admit against this, that when we *countenance* a man we are supposed to do him a kindness.

Unhappy and covetous are by no means altogether convertible terms.

> Populus mihi sibilat, at mihi plaudo
> Ipse domi,

says the avaricious man in Horace, yet a word (miser) properly indicating woe and pity, has been foolishly bestowed on one who has no pity for himself, and who probably receives less from others than any other description of character in existence. Some of our old writers used the term more properly, as when Sydney says, "From my heart I wish that it may not prove some ominous token of misfortune to have met with such a *miser* as I am." (*Arcadia*, lib. ii.) Our quotation from Horace induces us to ask, looking at the original sense of the word "*plausible*" (fit to be applauded), whence it has gathered the signification of unsound and fictitious, to which it is now confined.

Are we to attribute it to malice or ignorance that all the offices (*officia*, services) which an "officious" man performs are considered as interfering or superfluous? Barrow treats the word more mildly—"Every master would have his servants honest, diligent, and observant; every parent would have his children '*officious*'* and grateful." (*Sermon II.*) The Latins rarely, if ever, used the word officious in the sense of "meddling;" though in some cases, as in that of "*insolent*" (from *in*, not, and *soleo*, to be accustomed), we may plead their precedent.

We sometimes manage, by a mere change of number, to convey the feeling of scorn. The surprise of a foreigner, who has heard us speak in rapture of

> "Raphael's grace, and the loved Guido's air,"

is doubtless great, when he finds that the *s* of our harmonious plural has hissed all the virtue out of these laudatives, and given us, in "airs and graces," terms of unmitigated contempt.

(*To be continued.*)

HINTS FOR THE SCHOOLROOM.

MUSIC, AN IMPORTANT MEANS OF EDUCATION.

If education, properly defined, be the development of the mind and character, and not the mere communication of knowledge, it follows, that whatever exerts the greatest influence on these, ought to be esteemed a most essential principle in every system of education. Now, if the universal consent of antiquity, and the experience and practice of all nations, savage and civilized, have weight, there can be no doubt that music has a most potent and lasting influence on mind and morals. To prove this, we have only to consult the records of nations, preserved to us in the pages of history, or brought to our knowledge by our extensive commercial intercourse.

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* We suppose this would be called one of Barrow's latinisms. It might perhaps be considered as a defect that he occasionally endeavours to redeem a word in this way: we are more inclined to view it as a correct and certainly a Christian use of language, and it will be seen that our diction will bear a little Christianizing. There is no single word in our language which can be used as a substitute for "officious" in its proper sense, of which it seems a pity to have deprived it.

There never was a people yet discovered, among whom music was not cultivated as a sacred art, and employed in the service of the Deity, as a means of edification,—of inspiring devotion, and elevating the affections. To go to the cradle, as it were, of human genius, the far-famed Egypt, whence the great Jewish lawgiver, and all the lawgivers of antiquity acquired so much wisdom, we read that music was so esteemed, nay revered by the Egyptians, that they confined the knowledge and practice of it entirely to the priesthood, lest it should be corrupted by profane usage, and, being corrupted, should demoralize the whole nation. And, as the Greeks derived much of their learning and refinement from the Egyptians, we find them equally impressed with the mysterious powers of music as a means of education. We are informed, that they wrote their laws, civil and sacred, in verse, and, that they might be the more deeply impressed on the minds of the multitude, they were proclaimed with music. Plato and Aristotle relate, that in their time all moral disquisitions, illustrious actions, and the praises of the gods, were written in poetry, and *sung* in public, and that, not for the amusement, but for the instruction of the people. In fact, it was the general opinion of the ancients, that the " concord of sweet sounds" was not only emblematic of the order and harmony which prevail in the natural world, but was productive of extraordinary effects on the morals and politics of a nation, and in domestic and social life. And this opinion has been corroborated by the greatest statesmen of modern times; the celebrated Lord Chatham once said, that he cared not who made the laws of a nation, provided he had the making of the national songs. And, indeed, the music of a nation tells more upon its character than the laws. There is in it some secret, fascinating spell, which captivates, controls, and harmonizes the roughest and most discordant natures, — natures which laws can neither restrain nor amend. Illustrations of its more than magical influence are numberless. The classical student may relate some wonderful stories on this subject from antiquity; viz. how Pythocharis, with his flute, overcame the fierceness of ravenous wolves, which were on the point of devouring him; how wild boars and timid stags were entertained with a tune; and how dolphins have listened to a melodious voice. Also how, when Zethius and Amphion took Thebes, the stones in the city walls moved at the sound of the lyre which Mercury gave to Amphion; and how Jupiter, when he resolved to destroy Argus, with his hundred eyes, assigned the task to Mercury, who played so sweetly on his pipe, that he lulled all the eyes of the monster to sleep, and then lopped off his head with his crooked sword. " Sweetest Shakespeare, Fancy's child," says of Orpheus—

> " The poet
> Did feign that Orpheus drew trees, stones, and floods,
> Since nought so stockish, hard, and full of rage,
> But music for the time doth change his nature."

But the ancients had a higher opinion still of this " *art divine ;*" they attributed to it the healing powers of medicine.

We are told, that in the time of Athenæus, a grammarian of Egypt, a multitude of people at Thebes were cured of divers maladies by the flageolet. And Gellius assures us that that instrument was invaluable in cases of bites and stings. Martianus Capella says, that Asclepiades cured a deaf man by the sound of a trumpet, and that the Athenians could banish the fever by a song. And lastly, that Thales of Crete stayed the plague, and Xenocrates cured madness by music.

We have here, then, ample testimony to prove that music was considered by the ancients to possess a mysterious power. The experience of our forefathers confirms this. History records of our first Edward, that he cruelly massacred all the Welsh bards, because their national songs had such mighty influence on the national spirit as to render them invincible. And little do we reflect what an effect popular airs have upon the minds of the multitude. The influence which Dibdin's songs had in our navy, in nerving the spirits and elevating the character of our sailors, would seem as incredible as the tales of the ancients, were it not recent and well attested. And is martial music less effectual in the army in exhilarating the soldier and his steed? Why is it used there at all, but that it answers an important purpose? To close with instances; who has not read with delight of the soothing influence of the minstrel's lay on the habits of our rude and simple-minded forefathers,—how it refreshed the heart of the aged veteran, solaced the cares of the way-worn and disappointed, and recalled in advanced years the associations of childhood;

"For he would sing achievements high,
And circumstance of chivalry,
Till the traveller would stay,
Forgetful of the closing day."

Archdeacon Churton relates, that "Kings in Saxon times thought it a part of their state to entertain harpers at their courts, and that before the introduction of Christianity and letters, those who sung to the harp, called scalds or minstrels, were the only historians of the past, singing songs of the warlike deeds of their forefathers." He further remarks that, "Aldhelm, Abbot of Malmsbury, in the eighth century, finding that the half-barbarous country people, who came to hear divine service, were in a great hurry to return home, without paying much attention to the sermon, used to go and take his seat, with harp in hand, on the bridge over the Avon. Here a crowd soon gathered round him; and after he had indulged the common taste of singing some trifling song, by degrees drew them on to more serious matter, and succeeded at last in making them sing David's psalms to David's strings."

Such being the nature and power of music, it is easy to see how effective it may be made as a means of education. We find this remarkable testimony to its efficacy when thus employed in the Minutes of Council on Education, published some four years ago: "Scarcely any school visited in my district, in which music is taught successfully, fails to rise to considerable eminence in other respects. The schools at Longparish and Forton, where great attention is paid to this art, and where it proves a powerful means of *attaching the scholars to the church*, are excellent specimens of a *strong* *moral influence* being exercised thereby. Our forefathers reckoned music among the seven liberal sciences, and I hope that we are making a considerable advance in the right direction in bringing back into our schools an art which, under proper direction, cultivates a certain delicacy of feeling and gentleness greatly needed by the children of the poor, making their tempers plastic, and contributing in various ways to harmony and order. Of course it must be under proper direction, 'For,' as Hooker observes, 'there is nothing more contagious and pestilent than some kinds of harmony, than some nothing more strong and potent unto good.'" Such is the opinion of a Government inspector. To this we may add the testimony of a Roman Catholic journal to the same effect: "We are surely more than justified in urging upon the clergy, and upon all on whom devolves the instruction of the young the folly of any theory of education which does not recognise the existence of the musical faculty in the human mind, and which, while it is especially framed with a view to fit the child for the occupations of his future natural life, neglects to teach him that blissful work which will constitute one of his ineffable joys before the throne of God for ever." "The priest who has the direction of a poor school, the father of a family, the president of a college, may be assured that he is conferring no trifling boon upon the children who are under his charge, if he fosters in them a love for sweet sounds, and has them taught to play or sing during the season of their childhood." "Everywhere the morals of a class improve when a proficiency in the musical art is acquired. It is the same in every rank of life. Dissipation vanishes before the sound of do, re, mi, fa; and people are content to sing when they would otherwise be in the public-house or at the gaming-table." It would appear, then, that music is an innocent recreation, within the reach of every one, and attended with little expense; also a promoter of virtue, harmony, cheerfulness, and courage; and a preventive of vice and immorality. As such it is not only a means of education, but it is also a means of grace. It is the only art which is spoken of as practised in Heaven; at the dawn of creation "the morning stars sung together, and the sons of God shouted for joy." Unlike other sciences its principles are interwoven with our nature, and, when once called into action and cultivated, it is never forgotten. That it is not a mere acquirement may be gathered from the fact that children, even in their earliest years, before they can speak distinctly, or can have acquired any knowledge, melodize the language of their amusements, and converse in song. And the songs of our early days leave a lasting impression on our memories—they continue to haunt us through life.

GENERAL EXAMINATION OF TRAINING SCHOOLS.

CHRISTMAS, 1850.

MALES.

CATECHISM, LITURGY AND CHURCH HISTORY.

SECTION I.—1. Write the answer to this question of the Catechism, and show how it is drawn from the Lord's Prayer: "What desirest thou of God in this Prayer?"

2. "I believe in the Holy Ghost, the Holy Catholic Church, the Communion of Saints, the Forgiveness of Sins, the Resurrection of the Body, and the Life everlasting." Give scriptural authority for your belief in these Articles of the Creed.

SECTION II.—1. Explain the following terms:—Creed, Liturgy, Litany, Psalter, Rubric, Versicles, Responses, Lessons, Collects.

2. What are the Creeds received by our Church, and on what authority? Under what circumstances were they severally compiled?

3. For what festivals are proper Psalms appointed? To what use was the Psalter applied by the Jews? Why do the Psalms follow the General Confession and Absolution, and precede the Collects and Prayers?

SECTION III.—1. Write down the first sentence from "The Exhortation," and prove it from Scripture.

2. What is the order of the Ecclesiastical Year? What events are commemorated on its great festivals, and how are they fixed?

3. Give some account of the history of the Prayer Book, and the Thirty-nine Articles of Religion.

SECTION IV.—1. Give some account of the origin and institution of the Christian Church as described in the Acts of the Apostles.

2. Give some account of the persecutions of the Christians of the second century. What evidence do they afford of the truth of Christianity?

3. When, and under what circumstances, did the division of the Eastern and Western Churches take place?

SECTION V.—1. Who were the most illustrious fathers of the first two centuries? Give some account of one of them.

2. Give some account of the introduction of image worship, and of the councils by which it was, respectively, supported and condemned?

3. What authority of Scripture and of antiquity is there for the use, in the services of the Church, of a language understanded of the people? When, and for what assigned reason, were Latin services introduced in the Churches of Northern Europe?

SECTION VI.—1. What is the testimony borne to the piety of King Alfred?

2. Give some account, with dates, of the Waldenses, the Hussites, and of Wickliffe and his followers.

3. Relate, concisely, the principal events in the public life of Martin Luther, giving as many of the dates as you can.

4. How long did the Roman Catholic party remain in communion with the Church during the reign of Elizabeth, and under what circumstances did they separate from it?

SCHOOL MANAGEMENT.

SECTION I.—1. How would you organize a school of 60 children, from 7 to 13 years of age, supposing that you had a pupil teacher in his fourth year? Draw a plan of the school-room you would prefer, showing the arrangement of the classes, and the forms and desks. What part would you yourself take in the instruction of such a school, and what would you assign to your pupil teacher?

2. What different methods have been devised for organizing elementary schools? Illustrate your descriptions of these by diagrams, state which of them you yourself prefer, and the reasons for that preference.

3. What objects should specially be kept in view in the organization of a school? What are the advantages resulting from a good organization, and what are those elements of a school which no organization, however good, will secure.

SECTION II.—1. What expedients should be adopted to secure a regular attendance of the children in a school? What are those qualities of the master which are most likely to promote this regular attendance?

2. Show the divisions of the page of a register, by which the date of the transfer of each boy in a school from class to class may be recorded and easily referred to. What would be the advantages of such a register? What other means could you devise for recording the progress which each child is making?

3. What are the most important statistics to be recorded in a school; 1st., to aid the schoolmaster in his work; 2nd., for the information of the school managers; 3rd., for the information of the Legislature?

SECTION III.—1. Give examples of the questions in mental arithmetic which you would propose to a class of children of about eight years of age, and of those which you would give to your first class.

2. What different methods have been proposed for teaching children to read, and on what grounds?

3. On what principle is the method of Pestalozzi in teaching Arithmetic founded? Describe the tables used in teaching by that method, and the way in which they are applied.

SECTION IV.—1. Describe some of the characteristic defects of teaching in elementary schools.

2. What are the advantages of *oral* instruction, and what its disadvantages? What are the advantages of making this instruction collective, what are its disadvantages, and how can they best be guarded against?

3. What are the advantages of *questioning* as a method of teaching? Is it expedient to limit all oral teaching to that? If not, in what manner, and to what extent, may *exposition* best be united with it?

4. What relation ought oral teaching to have to the teaching of books?

SECTION V.—1. Write the heads of a lesson on the parable of the Rich Man and Lazarus, with a special reference to the practical instruction which it is intended to convey.

2. What are the faculties of children which it is the object of education to exercise and cultivate, and what expedients of instruction have a special application to each?

3. What are the characteristic dangers of the schoolmaster's profession; 1st., with reference to himself; 2nd., with reference to his scholars; 3rd., to the parents of his scholars; 4th., to the managing of his school?

SECTION VI.—1. Show that the happiness of children ought to be respected in a school.

2. In what respects may the selfishness of a teacher be prejudicial to the interests of his scholars and to his own? What facilities are afforded him for the indulgence of it?

THE ENGLISH LANGUAGE.

SECTION I.—1. How do nouns ending in *y* form their plurals? Give examples of words which do not admit a plural, and of others in which the singular and plural are alike.

Give definitions of an adjective and a preposition, and illustrate them by examples.

3. Give reasons for the corrections you make in the following sentences. "Her Majesties' Service." "I bought this book at Smiths' the booksellers." And supply the ellipses in the following. "I love Thomas better than he." "I love Thomas better than him."

SECTION II.—1. Give examples of a noun formed from the past participle of a verb, and of a diminutive noun.

2. What part of speech is that which, not being the name of an object, is, nevertheless, capable of forming either the subject or the predicate of a proposition?

3. Put the proper stops to the following passage, explain it, and give the derivations of the words printed in italics:

The gardens of the world produce only *deciduous* flowers *perennial* ones must be sought in the delightful regions above roses without thorns are the growth of paradise alone

Section III.—1. Correct the following passage, and parse it—

The sun upon the calmest sea,
Appears not half so bright as thee.

2. Write a paraphrase of the following passage, and parse the words printed in italics. To what three poets does it refer?

Three *poets* in three distant ages *born*,
Greece, Italy, and *England* did adorn.
The first in loftiness of thought *surpassed*;
The *next* in majesty, in both the *last*;
The force of nature could no further go,
To make a *third* she joined the other two.
(*Dryden.*

Section IV.—Paraphrase one of the following passages—

Heaven may not grant thee all thy mind;
Yet say not thou that Heaven's unkind.
God is alike both good and wise
In what He grants and what denies.
Perhaps what Goodness gives to-day,
To-morrow Goodness takes away.
(*Cotton.*)

Why sleeps the future, as a snake enrolled,
Coil within coil at noon-tide? For the WORD
Yields, if with unpresumptuous faith explored,
Power at whose touch the sluggard shall unfold
His drowsy rings. Look forth!—that stream behold—
THAT STREAM upon whose bosom we have passed
Floating at ease whilst nations have effaced
Nations, and Death has gathered to his fold
Long lines of mighty Kings—look forth, my soul!
(Nor in this vision be thou slow to trust)
The living Waters, less and less by guilt
Stained and polluted, brighten as they roll,
Till they have reached the Eternal City—built
For the perfected spirits of the Just!
(*Wordsworth.*)

Section V.—1. Give the derivations of the words printed in italics in the following sentence, and paraphrase it:—" Of *composition* there are *different methods*. Some employ at once *memory* and *invention*, and with little *intermediate* use of *pen*, *form* and polish large *masses* by *continued meditation*, and write their *publications* only when in their own *opinion* they have *completed* them."

2. Of what other languages is the English language, as now spoken, made up, and how were they severally incorporated with it? Give examples of words derived from each.

3. Give some account of the great writers whose works mark epochs in the history of the English language.

PHYSICS.

Section I.—1. What happens to a ray of light coming from water into air? What experiment illustrates this? Will the ray pass through the surface of the water at whatever angle it is incident upon it?

2. On what principle is it, and by what experiment, that the different coloured rays which compose white light can be separated?

3. Describe and explain the construction of the astronomical telescope. Why must the focus of the eye-glass coincide with that of the object-glass?

Why do we see distant objects more clearly with the telescope than with the naked eye?

SECTION II.—1. How may a bar of hard steel be converted into a magnet?

2. What is meant by induced magnetism? Is such induced magnetism ever produced in the iron of a ship, and by what cause? Has any expedient been adopted to neutralize its effect on the compass? and what?

3. What is an electro magnet? How is it made? How may it be made to lose its magnetic properties instantaneously? How has it been applied in the electric telegraph?

SECTION III.—1. How may oxygen gas be obtained, and what are its properties?

2. Write down all you know about carbon. What has it do with respiration and the combustion of fuel?

3. What are the component elements of water? How may hydrogen gas be obtained from it? What becomes of the oxygen of the water in this experiment, and what of the acid?

SECTION IV.—1. Why is the atmosphere less dense as we ascend higher in it? Do you see any connexion between the temperature at which water boils and the height of the barometer?

2. Describe some simple experiment showing that metals expand when heated. In what way does this property affect the rates of clocks and watches, and how are its effects compensated?

INDUSTRIAL MECHANICS.

SECTION I.—1. A man capable of lifting 200 lb. wishes to raise a ton weight by means of a crow-bar five feet long. Where must the weight bear upon it, the fulcrum being at one end and the man lifting at the other?

2. Describe any one of the different systems of pulleys, and show what is the relation between the power and weight?

3. How low must a single hoop be placed round the staves of a tub nine feet high and full of water, that it may just prevent them from opening at the bottom? Prove the rule you use in answering this question.

SECTION II.—How many cubic feet of water must descend a river every minute to drive a wheel of four effective horse-power, by means of a fall of 16 feet, the wheel yielding ·68 of the work of the fall.

2. What is the cost of excavating 40,000 cubic feet of earth, and transporting it to a mean horizontal distance of 700 feet; allowing three pickmen to every two shovellers, and to each workman 2*s*. 6*d*. per day.

3. Two men undertake to dig a drain 500 feet long, and to carry the material in barrows to a heap at the end of it. Into what two parts must they divide the work, so that one-half of the labour may fall to the share of each?

EUCLID.

SECTION I.—1. All the interior angles of any rectilineal figure, together with four right angles, are equal to twice as many right angles as the figure has sides.

2. Equal triangles upon equal bases, in the same straight line, and towards the same parts, are between the same parallels.

3. If the square described upon one side of a triangle be equal to the sum of the squares described upon the other two sides of it, the angle contained by these two sides is a right angle.

4. In every triangle the square of the side subtending either of the acute angles is less than the squares of the sides containing that angle by twice the rectangle contained by either of those sides, and the straight line intercepted between the acute angle and the perpendicular let fall upon it from the opposite angle.

N.B.—The first case only of this proposition is to be proved.

SECTION II.—1. If a straight line drawn through the centre of a circle cuts another at right angles which does not pass through the centre, it bisects it.

2. To draw a straight line from a given point, without the circumference, which shall touch a given circle.

3. To inscribe a circle in a given triangle.

4. To inscribe an equilateral and equiangular quindecagon in a given circle.

SECTION III.—1. The sides about the equal angles of equiangular triangles are proportionals.

2. Similar triangles are to one another in the duplicate ratio of their homologous sides.

3. The rectangle contained by the diagonals of a quadrilateral figure inscribed in a circle is equal to the sum of the rectangles contained by its opposite sides.

SECTION IV.—1. Given the base, the vertical angle, and the perpendicular in a plane triangle, to construct it.

2. If one diagonal of a quadrilateral bisects the other, it divides the quadrilateral into four equal triangles.

3. From a given point without a given straight line, to draw a straight line making an angle with the given line equal to a given rectilineal angle.

4. If two circles intersect, the common chord produced bisects the common tangent.

HIGHER MATHEMATICS.

SECTION I. Find the 30th term of the series — 27, — 20, — 13, &c.

2. The sum of a series is 15350, its last term 302, and its common difference 3; what is its first term?

3. The sum of an infinite geometric series is 3 and the sum of its two first terms $2\frac{2}{3}$; find the series.

SECTION II.—1. In how many ways can the 3 highest places in a class of 8 be filled differently? Prove the formula you use in working this example.

2. Find all the positive integral values of x and y which satisfy the equation $3x+5y=26$.

3. Find the value of $\frac{1-3x+2x}{1-x^2}$ when $x=1$.

SECTION III.—1. Investigate a formula for the value in n years of a sum of money £a at r per cent. compound interest, the interest being payable q times a year.

2. Find the present value of an annuity of £a to commence at the expiration of p years and to continue q years, allowing r per cent. interest.

3. Prove the binomial theorem in the case in which the index is a positive integer; and apply it to determine the first four terms of the expansion of $(1+x)^{-\frac{1}{2}}$.

SECTION IV.—1. Define the Logarithm of a number, and investigate a formula for determining its value in a converging series.

2. Show that Sin (A + B) = Sin A Cos B + Sin B Cos A.

3. Show that if a, b, c be the sides of a plane triangle and S half their sum, the area of the triangle

$$=\sqrt{S\,(S-a)\,(S-b)\,(S-c)}.$$

SECTION V.—1. Show how to differentiate the product of two functions, and perform the following integrations:—

$$\int 5x^3dx, \qquad \int x^{-4}dx, \qquad \int (a+bx^n)\,dx,$$

2. Prove Maclaurin's theorem, and apply it to determine an arc in terms of its tangent.

3. Investigate expressions for the area of the segment of a circle and for the solid content of a segment of a sphere.

Correspondence.

A HINT TO SCHOOLMASTERS AND SCHOOLMISTRESSES, AS WELL AS TO THOSE WHO HAVE TO SELECT THEM.

Sir,—While I was thinking over the qualifications requisite in a teacher, and putting down the heads of information necessary to be obtained previous to a personal interview, I unconsciously put down one of the following alliterated triplets, and, having for amusement's sake attempted to form others, and succeeded to an extent which might easily be increased, I send you the result. It may chance that you will think the insertion of my fancy, in some shape or other, may interest some of your readers. It might be used as a help to self-knowledge by a Teacher, and as somewhat of a guide to one who was selecting a Teacher.

Age,
Activity,
Authority.

—

Height,
Health,
Home (native).

—

Faith (creed),
Form (robust, &c.),
Features (defect).

—

Dress (neat, &c.),
Diligence,
Decision.

—

Tact (managing different dispositions),
Temper,
Teachableness (secret of improvement).

—

Mind (originality),
Manner,
Method.

—

Head (ingenuity),
Heart (affection),
Hand (needle, &c.).

—

Painstaking,
Piety (reverence),
Practice (consistent).

Perhaps some of your correspondents may desire to add to this list, or make it more accurate.

I remain, yours faithfully,
E. J. B.

Vicarage, Godalming.

Notices of Books.

SCHOOL SERIES, EDITED BY REV. G. R. GLEIG, M.A., INSPECTOR-GENERAL OF MILITARY SCHOOLS. HISTORY OF ENGLAND, IN TWO PARTS. (*Longmans.*)

This little work is put forth by its author as a specimen of a series. His object, as stated by himself, is substantially this. He tells us, in the preface, that he is anxious to remedy what he considers to be a manifest defect in the school literature of this country, viz., that school-books have been hitherto compiled merely for the purpose of teaching the mechanical art of reading; and so are made up of a jumble of extracts from which the scholar can receive no distinct impression on any one subject; he proposes, therefore, to put forth a series of class-reading books, each of which shall contain a complete and continuous subject, so that every lesson-book, however elementary, may convey "knowledge to the mind, as well as words to the eye of the learner." He says, moreover, that his experience, as inspector of military schools, has led him to take up this view, it being neither edifying nor pleasant to see grenadiers gathering, from their painful efforts, merely such facts as these: "Tom is a good boy, and spins his top;" "the cat mews;" or the like. In order to avoid using any book that contains such facts as these—the first fifty pages of the history, which carry us up to the reign of Edward III., are written almost entirely in monosyllables; the next fifty in words of not more than two syllables; and so on.

Both Mr. Gleig's observations we consider more plausible than sound. If extracts are so arranged that each reading lesson is complete in itself, it can hardly be said that intelligent children would gain no knowledge from them. History, indeed, geography, and the like, no one would attempt to teach in this way; but what can be better adapted to teach reading, and at the same time to impart pleasure and instruction, than short pieces of biography, incidents of travel, poems, or the like? whereas a history of some 300 or 400 pages will, if used as a book to teach reading, require at least half-a-year to get through, and will practically be as discontinuous as any book of extracts.

As to Mr. Gleig's other point, we can hardly suppose that children unable to master dissyllables could gather knowledge from their own reading, even if the age at which they are commonly taught allowed it: at such a period, reading *must* be mechanical; and it will, we believe, be found always to be the case, that, until the learner, whether babe or grenadier, can read words of two and three syllables with tolerable ease, it makes little or no difference what he reads, so that the words be well chosen, and the ideas simple.

The straits to which Mr. Gleig is driven when he strives to press the facts of history into monosyllabic words are amusing. Occasionally he is led into an incorrect or a technical use of a word, often into a roundabout way of telling a simple fact that would be well told in three or four longer words.

We are inclined to think that Mr. Gleig, in a right-minded zeal for his work, being desirous, as he says, to become godfather (a misuse of the word, by the way,) to a series of school-books, and looking about for some new points to attract attention, has hit upon these, and rests his claim upon them rather than upon the merits of the books. We have but little space to speak of the history itself, but we may just mention that it is somewhat upon the excellent plan of Scott's Tales of a Grandfather, and that it is written in a spirited and pleasant way; and whilst we beg of Mr. Gleig to cancel his preface and get rid of his monosyllabic crotchet, we trust that he will not deprive us of his labours.

AN ESSAY ON PAPAL INFALLIBILITY. BY THE VENERABLE JOHN SINCLAIR, ARCHDEACON OF MIDDLESEX, AND VICAR OF KENSINGTON. (London: *Rivingtons*, 1850.)

THIS is a well-timed reprint, with some little alteration, of the matter forming two chapters of the author's larger work, "Dissertations vindicating the Church of England in respect to some essential Points of Polity and Doctrine." The subject is argued with the temperate impartiality, forcible reasoning, and perspicuous elegance, which are well-known characteristics of the author. We strongly recommend an attentive perusal of this tract by all Churchmen who wish to be "armed against the errors of the time."

EMPERORS OF ROME, FROM AUGUSTUS TO CONSTANTINE; BEING A CONTINUATION OF THE HISTORY OF ROME. BY MRS. HAMILTON GRAY. (London: *T. Hatchard*, 1850.)

This is a very skilful attempt to adapt a hard subject to youthful comprehension. Mrs. Gray writes in a perspicuous and animated style, and has admirably succeeded in presenting without desultoriness the salient points of the Roman empire's history. The neat explanatory mode in which the phraseology of Roman antiquities is introduced renders the volume highly interesting and instructive.

ARITHMETIC: RULES AND REASONS. BY J. H. BOARDMAN, M.A., MATHEMATICAL MASTER, FREE GRAMMAR SCHOOL, MANCHESTER. (London: *G. Bell*, 1850.)

In this treatise the rules are propounded artificially, and the reasons of them subjoined; questions being added for examination on the technical portion of the text. It may form a useful illustrative companion to some other books of arithmetic; but it is too brief to supersede such text-books as those of Thomson, Hunter, and Colenso. The demonstrations are in most instances developed with as much simplicity as seems attainable without algebraic assistance. The rule of alligation is treated in a very satisfactory way, which, however, has not the degree of novelty that the author supposes, as it closely resembles the method presented in Hunter's Text-Book. On the whole, we must say, that Mr. Boardman's Treatise is well worth publication, as regards the assistance it may afford to intellectual instructors.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

Ques. 87.—*Proposed by Mr. O'Clazey, Durham.*

A man and a boy are engaged to dig a trench. The man could finish it in 12 days, and the boy in 20; supposing them to begin at the same time, one at each end of the trench, when should they exchange places so as to meet exactly in the middle?

Answered by Mr. Royds, Belfield.

Part of the work done by the man in 1 day $=\frac{1}{12}$,
" boy in 1 day $=\frac{1}{20}$,
∴ " man and boy in 1 day $=\frac{2}{15}$,
∴ No. of days to finish the whole $=1\div\frac{2}{15}=7\frac{1}{2}$ days.

Now the time, after the commencement, when they must exchange places, must be equal to the half of the whole time, that is $3\frac{3}{4}$ days.

QUES. 88.—*Proposed by Mr. Dyer, Wanstead.*

A cylindrical glass, six inches long, is forced into a tub of water until the top of the glass is on a level with the water in the tub. How high will the water ascend in the glass?

Answered by Mr. Salter, Durham; and similarly by Mr. W. Righton, and Mr. Young, Elsdon.

Suppose the pressure of the atmosphere to support a column of water equal to 34 feet, or 408 inches, and let x = the height of the water in the glass, then height of the air in the glass $= 6 - x$; hence we have, by Mariotti's law (see Tate's Exercises on Mechanics, p. 49),

$$\text{Pressure of the air in the glass expressed in a column of water} = \frac{6 \times 34}{6 - x};$$

Therefore, by the equality of pressures,

$$x + \frac{6 \times 408}{6 - x} = 408 + 6,$$

$$\therefore x^2 - 420x = -36,$$

$$\therefore x = \cdot 09 \text{ inches.}$$

QUES. 89.—*Proposed by Nemo.*

How many cubic feet of water must descend a river every minute to drive a water-wheel of P effective horse-powers, by means of a fall of h feet, the wheel yielding the n^{th} part of the work of the fall?

Answered by Mr. Herbert, Woolton; and similarly by Mr. Brown and Mr. Preston.

Now, by Tate's Exercises on Mechanics, p. 34, we have,

$$\text{Work of the wheel per min.} = 33000 \text{ P}.$$

$$\text{Effective work of 1 cub. ft. of water} = \frac{62 \cdot 5\, h}{n}.$$

Now as many times as this work of one cubic foot of water can be taken out the work of the wheel per minute, so many cubic feet of water must descend the stream in the same time,

$$\therefore \text{No. cub. ft. water} = 33000 \text{ P} \div \frac{62 \cdot 5\, h}{n} = \frac{33000.\, \text{P}.\, n}{62 \cdot 5.\, h},$$

$$= \frac{528.\, \text{P}.\, n}{h}.$$

LIST OF MATHEMATICAL ANSWERS.

Nero, Berwick, ans. 87, 89; W. Righton, ans. 87, 88, 89; J. Salter, Durham, ans. 87, 88, 89; G. Barnacle, Empingham, ans. 87; A. M., Gillingham, ans. 87. 89; J. Herbert, Woolton, ans. 87, 89; W. Spark, Durham, ans. 87; H. Ford, Norham, ans. 87, 89; J. O'Clazey, Durham, ans. 87, 89; S. Dyer, Wanstead, ans. 87, 89; C. Lucette, Elson, ans. 87, 89; G. Morris, Gosport, ans. 87, 89; F. R. Crumpton, ans. 87, 89; T. Brown, ans. 87, 89; T. Young, Elsdon, Northumberland, ans. 87, 88, 89; T. Preston, Bagshott, Berks, ans. 87, 88, 89; W. Davison, Sunderland, ans. 87; G. Selden, Hurst, ans. 87, 89; T. B. Hall, Newcastle, ans. 89; W. M. Strickland, Newcastle, ans. 87; E. Rutter, Sunderland, ans. 87, 89; J. Royds, Belfield, ans. 87, 89; T. Sothern, Burtonwood, ans. 87, 88, 89.

NEW QUESTIONS,

To be answered in our Number for March, 1851.

Ques. 90.—*Proposed by Mr. T. Brown.*

A solid lost $1\frac{3}{4}$ oz. when weighed in water, and $1\frac{1}{2}$ oz. when weighed in spirits; required the specific gravity of the spirits.

Ques. 91.—*Proposed by Tom Tomkins.*

Required the same as in question 88 of the last Number of the Magazine, when the fluid is mercury in the place of water.

Ques. 92.—*Proposed by the same.*

A right cone is cut out of an upright cylinder; it is required to find the work requisite to overturn the remaining portion of the solid on the edge of its base.

Intelligence.

The following paper has been addressed by the Rev. W. Sewell, to the Vice-Chancellor:—

"Exeter College, Nov. 26, 1850.

"Dear Mr. Vice-Chancellor, — I have just acknowledged the receipt of a Paper of Questions which has been transmitted to me, as to other Senior Tutors in the University, by her Majesty's Commissioners.

"I have abstained from offering any information to the Commission; not from any sullen or disrespectful spirit of opposition, however I may lament and deprecate its tendency and effects, or may feel personally convinced of its illegal and unconstitutional character, but because I have felt it impossible to take part in an inquiry which appears to me to compromise rights which I am bound to maintain.

"But the Questions have brought again before me considerations on most important subjects connected with the extension of the University; subjects on which I am convinced there is among us one common feeling of interest, and of desire to do right. And just at this time the following paper has been placed in my hands. I trust that, without committing myself to every suggestion contained in it, I cannot be wrong in laying it before yourself and the university; not indeed as if it embodied a full-formed plan, but as a germ and outline of a scheme which, by God's blessing, *if originated by ourselves*, may answer some of the good ends put forward as the objects of the commission, without endangering those vital interests which we are so solemnly bound to maintain.

I know that at least you will give to the subject that impartial and judicious consideration which you bestow on every matter connected with the duties of your high office, and with your constant kindness will forgive me for presuming thus to intrude upon your attention.—I am, dear Mr. Vice-Chancellor, very faithfully yours,

W. **Sewell**, Fellow and Tutor of Exeter College, and late Professor of Moral Philosophy.

The Commissioners appointed by her Majesty for Inquiring into the State of the University of Oxford, have transmitted to the Senior Tutors of the university a Paper of Questions on points of great moment, on which they desire information and suggestions.

While doubts are still resting on the legality of the commission, many tutors may naturally feel reluctant to take part in the pending inquiry.

It is, however, right that this reluctance should not be attributed to improper motives—either to a spirit of captious or sullen resistance, or to an indifference to the important subjects to which their attention has been drawn by the commissioners.

The diminution of the expence of education—its extension in the best form, that form which the universities alone are capable of supplying—its expansion to the utmost limits, so that it may embrace the whole kingdom, not even excluding the most distant colonies, if possible—these are objects of general concern, for which it is the duty of the universities themselves to provide to the utmost of their power, without abandoning their present relation to the Church, or infringing upon the special objects of private endowments.

With these feelings the following paper has been prepared, for the consideration of those to whom the questions of the commissioners have been addressed.

Considering that their first duty at the present moment is to guard the rights and independence of the university, and of their respective colleges, it is obvious that they cannot consistently recognize the right of any external power to force upon them measures, however desirable in themselves.

But, subject to the paramount obligation of maintaining this principle inviolate, they most certainly desire to promote to the utmost of their power many of the objects which the commissioners appear to have in view.

It can hardly, however, be expected that they should concur in any steps to be taken for the attainment of those objects which shall not originate from within. And any suggestions which they might wish to offer could only consistently be addressed by them to the consideration of the proper authorities within the university.

The prominent idea indicated in the paper referred to (transmitted by the Commissioners) is the desire to extend the privilege and advantages of the university system of education as widely as possible.

Without discouraging in any way the notion of opening halls, either as independent societies or in connection with existing colleges, the difficulty of effecting perfectly the end proposed, solely by an increase of such bodies, appears to be insuperable.

First, on account of the want of funds, whether for building or endowments.

Secondly, from the difficulty of incorporating the new communities into the existing system of the university.

Thirdly, because such a plan would in no adequate degree meet the main evil—the *expence* of education, which necessarily bars the advantages of the university to a great mass of the community.

Fourthly, because, considered in reference to the wants of the whole body of society, the plan would be found impracticable from the numbers which it would be required to embrace.

It would be needless to enumerate subordinate difficulties.

The objection to extending the benefits of the university by admitting students within the walls, not subjected to regular discipline, are equally obvious.

For such a plan would necessarily destroy the order of the place, and essentially deteriorate the spirit of the present system, and the general character of the students.

It would also be found practically

inoperative in diminishing the expence of education. In some respects it must even enhance it.

Another plan suggests itself for consideration, which, upon the whole, appears to combine, as much as possible, the advantages required, with the least amount of objection.

Though it may be impossible to bring the masses requiring education to the university, may it not be possible to carry the university to them?

The university possesses a large amount of available resources and machinery, with which the present extent of education conferred by it is by no means commensurate.

These resources, consisting partly of pecuniary means, and partly and principally of men of high talents and attainments, at present without adequate opportunities of employment, may be made instrumental in planting the seeds of academical institutions throughout the country, by establishing professorships, lectures, and examinations, leading to academical honours, in the most important places in the kingdom.

For instance, at first, and by way of experiment, professorships and lectures might be founded, say at Manchester and Birmingham, the great centres of the manufacturing districts, and in the midst of the densest population.

The institution of these professorships and lectures would be strictly analogous to the original foundation of the universities themselves.

They would require little cost beyond the necessary stipends of the professors engaged.

Students, after due attendance on such lectures, would undergo examination before a body of examiners sent from the university; such examinations to be of precisely the same character and governed by the same rules as those required in the university.

After such attendance on lectures and examinations, students, having obtained proper certificates of proficiency and general conduct, might be entitled to receive from the university of Oxford academical degrees, with only such a limitation of privileges as would be strictly equitable and necessary.

The admission to such lectures, and non-resident degrees, might, it is thought, be safely opened as widely as possible, without requiring any theological test except in the case of theological degrees.

The objections to throwing down this barrier to indiscriminate admission within the walls of the university remain in full force; but the question of admission to academical instruction, under the proposed plan, assumes a different form, and may be regarded as almost, if not entirely, relieved from those objections.

Without trenching on this principle, persons having obtained non-resident degrees might, it is suggested, be made capable of adoption into the full privileges of the university upon complying with the terms of subscription, &c., at present required of its members.

The funds for maintaining such professorships, lectures, and examinations, might be provided partly from the Clarendon Press, and partly by payments to be made by the students themselves, and ultimately (as might be fairly expected) by private endowments and benefactions.

In order to facilitate the immediate commencement of such a system, without involving the necessity of costly buildings, communications might be opened with the proper authorities of the places mentioned; who would no doubt gladly provide the requisite accommodation for the delivery of lectures, holding examinations, &c.

By degrees the system might be extended through the whole country, and similar institutions might be planted in the principal towns, in convenient districts, such as Norwich, Exeter, Leeds, Canterbury, &c. Cambridge would, of course, take its due share of the work.

The nucleus of a university being thus formed in each place, the same laws which have developed by degrees the institutions of Oxford, might be expected, in some proportion at least, to create a collegiate and tutorial system subordinate to it.

A plan of this kind would immediately open a wide field of occupation for fellows of colleges, who, being at present not engaged in tuition, are often obliged to quit the university to seek a maintenance, and thus present the palpable evil of a non-resident body unconnected with academical duties.

It would extend the benefits of university instruction to the utmost possible limits.

It would reduce the expense to the lowest point.

Wherever its institutions were planted, the immediate residents would be provided with the opportunity of completing the education of their sons, without parting with them from under their own roof.

The cycle of instruction itself would embrace the various subjects comprehended in the university examinations, and, as a distinct branch, theology according to the doctrines of the Church.

Probably five or six professors would be necessary at first for each locality.

The suitable income for each may be estimated at not less than 500*l.* a-year, with a special guard against their taking private pupils.

The opportunity of holding such professorships would be an inducement to men of talent to devote themselves to particular branches of literature at the universities, instead of wasting their lives, as is frequently the case at the present day, in the fruitless pursuit of barren professions.

And, lastly, by originating such a comprehensive scheme, the universities would become, as they ought to be, the great centres and springs of education throughout the country, and would command the sympathy and affection of the nation at large, without sacrificing or compromising any principle which they are bound to maintain.

BATTERSEA TRAINING COLLEGE.—We are glad to be able to give a favourable report of the prospects of this Institution. The National Society has recently voted the sum of £1000 for five years, and this, with the sum that has been raised by the exertions of the committee formed for ascertaining whether funds could be raised for its support, place its continuance beyond doubt. The committee consists of the Earl of Harrowby, the Venerable Archdeacon Sinclair, William Cotton, Esq., and the Rev. C. B. Dalton. Further promises of support may be notified to the Rev. C. B. Dalton, Rectory, Lambeth.

ST. MARK'S COLLEGE.—The Rev. A. R. Ashwell, of Caius College, Cambridge, has been appointed Vice-Principal of St. Mark's, in place of the Rev. Samuel Clark, resigned.

To Correspondents.

ERRATA.—In January number, page 22, line 15, for "properly," read "purposely."

Page 23, line 2, for "*τὰ Ἄβδηρα*," read "*τὰ Ἄβδηρα*." Line 20, for "Christian names," read "names." Line 21, for "Zosomus," read "Zosimus."

A VILLAGE SCHOOLMISTRESS.—We know of no book on Needlework combined with Cutting-out. There is one without specimens, published by the Irish National Board. Nor do we know of any on Knitting Stockings.

OMEGA hardly states the passage from the letter of Onesimus correctly; the defence does not seem to us called for.

C. L. C.'s suggestion does not seem to meet the difficulty.

LATIN ETYMOLOGY.

No. VII.

One of the most marked blemishes in the current lexicons is the carelessness with which the power of the preposition in compound verbs is placed before the reader. For example we find in Mr. Riddle's work, Prætorqueo, 'to twist forward or round, Plaut.;' but the error is not his own. He has translated, with all the requisite precision from his usual authority, Lünemann, who has: Prætorqueo, vorwärts drehen, oder umdrehen, Plaut. What idea is intended to be conveyed by the words "twisting forward" it is not easy to see; nor is much added to the notion of *twisting* by the addition of the word *round.* Without turning to the passage of Plautus one may readily infer that *præ* in *prætorqueo* has the same power which it possesses in *præustus*, 'burnt at the end,' *præacutus*, 'sharpened at the end,' *præsepire*, 'to close (a passage) with a fence at the end,' *præsecare*, 'to cut off the end of,' &c. But the passage, where the word occurs in Plaut. Rud. iii. 2, 12, *Prætorquete injuriæ collum*, removes all doubt; for the phrase is a metaphor from wringing the neck of a fowl, that is: wringing what projects. But the word also occurs in Columella (iii. 18) and with the same power, *prætorquere caput surculi*, 'to twist the end of a vine-shoot.'

The preposition *ad* in its ordinary significations of 'motion to' or 'presence near,' is one that causes little trouble. But Lünemann and his translator seem to fancy that the little word may have the two opposite senses of presence and absence. Thus the former tells us that Plautus has the phrase *amorem procul adhibere*, in the sense of *entfernen*, i. e., as Mr. Riddle translates it, *remove*. And the latter, apparently desirous of supporting the German writer, for once gives us something in addition to Lünemann's article, in the words, "N.B. Adhibere aliquem procul, 'to remove to a distance,' Plaut." Now the fact is, that the passage to which Mr. Riddle refers is precisely that to which the German referred, viz. Trin. ii. 1, 30. As *amor* in this passage happens to be a personification, Forcellini quotes the passage with a substitution of *aliquem* for *amorem*, which probably has led to the error. That *adhibere procul* is a contradictory phrase has long been felt. Ritschl has *procul abdendust*, others with greater probability *procul habendust*, which is all the metre requires. It is not unfrequent for a single corrupt passage to be thus made the foundation for a special meaning in our lexicons; but it was an ingenious improvement to support such an error by quoting the self-same passage in a disguised form.

On the use of *ad* with the sense of 'favourably' it may be enough to point to *addicere*, as used of auspicious omens, *annuere* 'to nod assent,' and then to correct the error in Mr. Riddle's translation of his German authority. *Anlachen*, we believe, invariably means 'to smile upon,' and thus Lünemann was correct in giving it as the equivalent of *arridere*. 'To laugh at,' Mr. Riddle's phrase, is of very different power and very ill-suited to the two passages he quotes; for in Cic. de Opt. Gen. Or. c. 4, *arrideri* is put in direct opposition to *derideri*, and the passage from Valer. Cato, which is given in Forcellini, by the added word *ocellis*, tells us that 'kindly smiling,' and not 'ridicule,' was intended.

But we proceed to a more difficult question, the consideration of those verbs which are said to receive from the prefix *ad* an intensive power. The doctrine, supported by the authority of A. Gellius (iii. 16), is, that *ad* in such words denotes 'near completion' (*proxime finem*); and such an explanation is in some measure confirmed by the fact that this use of *ad* is for the most part limited to the perfect participle, as in *affectus*, *attritus*, *accisus*. It is known that the Germans, in the syllable *ge* prefixed to their perfect participle, have the analogue, so to say, of the Latin preposition *con*. For this we have the authority of Grimm. Now if *con* before a perfect participle is employed to denote an action quite completed, *ad* in the same position is well-fitted to denote one nearly completed. The theory of Gellius is avowedly founded on the authority of Cicero, sicuti Cicero et veterum elegantissimi locuti sunt. But the authority of Cicero himself may be opposed to the theory. In the Or. de Prov. Cons. c. 8, are the words—Bellum affectum videmus, et vere ut dicam, pæne confectum—where it is clear that *affectum* expresses something short of *pæne confectum*.

Perhaps a more just explanation is to be found in the idea that *ad* denotes added or repeated action. This idea of repetition seems to belong to many Latin verbs which have *ad* prefixed. Thus we seem justified in translating *accelerare*, 'to quicken more and more;' *adaugere*, 'to increase more and more;' *admonere* 'to warn again and again;' *addubitare*, 'to doubt and doubt;' *adbibere*, 'to drink and drink, i. e., to drink deeply;' *appropinquare* 'to draw nearer and nearer' (for *propinquare* alone might signify 'to draw near'). If this view be right, *accidere* is 'to cut again and again,' and hence 'to cut deeply.' Lünemann in the words *anhanen*, *anschneiden*, *einschneiden*, and Riddle in the translation *to cut at, cut into*, seem both to have missed the meaning. The first passage they refer to, Cæs. B. G. vi. 27, they can scarcely have read, although they are so unusually precise in their reference. The Latin writer tells us that the *alcis*, having no joints to its legs, slept by leaning against a tree, and that the hunters finding out the favourite tree, in the absence of the beast, *accidunt arborem*, i. e., cut deep into it; so that the pressure of the beast brings the tree, and consequently the helpless beast also, to the ground. Again, both our lexicographers refer to Silius for *accisa ornus*, where the verb has the very same meaning. But the fact is, Silius is only borrowing a phrase of Virgil's (Æn. ii. 626), who would have been a better authority than the poet of the silver age. Now the words of Virgil seem decisive upon the point;

Antiquam in montibus ornum
Quum ferro accisam crebrisque bipennibus instant
Eruere agricolæ certatim, illa usque minatur,
Et tremefacta comam concusso vertice nutat.

Moreover the metaphorical usage of *accisis rebus* accurately agrees with the idea of a deep cut into the power of a state.

Attritus again means 'rubbed and rubbed until a deep hole is made;' *adustum*, 'a deep burn;' *adesus*, 'eaten deeply into;' *attondere*, 'to cut and cut the hair,' i. e. 'cut it short, cut it close.' The last word occurs repeatedly in Plautus, both in its natural sense and used metaphorically; and the meanings always agree with what we have said. Celsus also has the phrase, caput attonsum habere, which our medical men will not be at a loss to translate. According to what we have said, *affecta æstate*, and such phrases in Cicero, will signify 'the summer being far advanced,' which is something less than 'the summer being all but finished.' The use of *ad* in the sense we have been now discussing has been in many of the words wholly lost sight of both by Lünemann and his translator. CLAUDIUS.

ON THE PERVERSION AND CORRUPTION OF WORDS.

(*Continued from page* 52.)

Before we close this part of our subject we will give a few more instances of the application of innocent terms to malignant purposes. To "*impute*" properly signifies "to consider as belonging to," "to put down to one's account;" hence, we use very correctly the terms "imputed righteousness:" but in our familiar language we always use "*imputation*," as conveying the idea of reproach. The same remark may be made with regard to the word "*reflection*." Why should the finger be that of contempt which points out a "*singular object?*" there is nothing in either of the words which would properly authorize any such emotion. "*Propensity*" corresponds as nearly as possible with inclination;—why do we make the worse scale preponderate? Having "anger," "rage," "wrath," to choose from, why cannot we leave to *passion* its real extensive and indifferent signification? We are tempted to erase the word which we have used with its just latitude, because modern writers have most outrageously chosen to make "*indifferent*" equivalent to "bad." Now, with swarms of these insipid, emasculated, but withal venomous terms, it is half melancholy, half ludicrous, to hear the continual boastings of the force and fulness of our native language. A great part of this worthless stuff is of comparatively recent introduction. Surely a language might afford to throw away some of its boasted copiousness, when so much of this copiousness tends, not to the nicer distinction, but to the more chaotic confusion, of ideas. When the fashionable world wishes to express sovereign contempt, it calls a man a "strange person;" an influence from above, which reminds us of Habington's country justice,

> "Whose nonsense
> Corrupted had the language of the inn,
> Where he and his horse littered.—*Castara.*

Rather let us go back to crackrope, losel, doddypoll; let us be indebted to Italian for its scoundrel (*scandarulo*), to dog-Latin for its nincompoop (*non compos*); anything is surely better than the downright nonsense of calling "bad" "indifferent," without even any of those qualifying words with which it was used formerly, and then not very justifiably, as, "indifferent good," "indifferent honest," &c. It is, perhaps, rather the fashion to over-estimate, in the present day, the force and simplicity of the language of the lower orders; but we really believe they have this merit—that, however ignorantly they may adopt new and grandiloquent words, they do not readily part with a sense once clearly known to them, nor adopt namby-pamby, vapid terms, recommended by neither sound, sense, nor energy.

Our strong term "affront" signifies no more than to meet face to face. It was thus formerly used, as in Hamlet:—

> "That he, as 't were by accident, may here
> *Affront* Ophelia."

"*Resentment*" is the return which we make in feeling for the thoughts or conduct of others; and the sense in which Barrow uses the word in the following passage is therefore quite as proper as that to which we are in the habit of confining it:—

> Man's "mouth should ever be filled with acknowledgment and praise; he should always be ready to express his grateful *resentment* of so great and peculiar obligations."—*Sermon* LII.

In the same way, if we have any right to refer to the etymons of words at all, how senseless is our restriction of the word "affected," and how differently Jeremy Taylor!—

> "Remember the death of Christ, not only casting your eyes back to the large histories of it in the Gospels, as if that would suffice, but *affectedly*, (with emotion,) practically, zealously."—*Discourse on the Sacrament.*

And here we may observe, that by no means the least evil of this absurd use of terms without reference, or with only half reference, to their etymons, is, the confusion and the vast number of anomalies thereby produced, puzzling to any one who is anxious to look into language with the eye of a student, cognate terms scarcely giving any clue to each other's meaning. This may be shown by a citation of some of the words already referred to, as "affected, affection;"[*] to

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[*] Shakespeare uses the word *affection* in both its senses in the same scene of the same play:—

"*Nath.* I praise God for you, Sir: your reasons at dinner have been sharp and sententious; pleasant without scurrility, witty without *affection*."

And again:—

"*Arm.* Sir, it is the king's most sweet pleasure and *affection* to congratulate the princess at her pavilion."—*Love's Labour's Lost*, v. 1.

And here it may be observed, respecting Shakespeare, that, in spite of all his licences, much of the force of his diction is owing to his frequent use of words in their *distinct etymological sense;* partly from his own classical knowledge, which was most unquestionably much greater than some of his shallow critics give him credit for; and partly, because many of the words borrowed by him from earlier English authors had been only recently introduced into the language, and their meaning consequently had not been frittered away or alloyed: and this further may be observed, respecting the diction of Shakespeare, that whereas, when Milton endeavours to naturalize a classical word or idiom, there is an air of pedantry and of conscious scholarship in the mode of introducing it: this never strikes us in the case of Shakespeare.

Whilst speaking of our poets, it is perhaps worthy of remark, that one of the most fortunate of them, in avoiding words destined to become obsolete, is Waller, from whom Pope copied his prophecy referred to in the September number. Waller's words are these,

> "But who can hope his lines should long
> Last in a daily changing tongue.

* * * * *
* * * * *

"reflect, reflection;" "simple, simplicity;" "conceive, conceit;" where one of the terms is neutral or favourable, and the other the reverse.

We may often observe such words as those we have been referring to, in the act of transition, as in the case of "impertinence," which primarily signifies anything that has no important reference, or does not at all *pertain* to the matter before us. Thus—

> "If we engage into a large acquaintance, and various familiarities, we set open our gates to the invaders of most of our time, we expose our life to a quotidian ague of frigid *impertinences*, which would make a wise man tremble to think of."—*Cowley, Essay on Obscurity.*

Here it will be easily seen how the word has passed into its present meaning. Sometimes we find an attempt to intercept a word in its passage. Thus, "wit" was losing its original more dignified sense, when the author just cited claimed for it, in the following lines, its higher meaning:—

"A wit, that greatest word of fame,
Grows such a common name.

* * * * * *
* * * * * *

'Tis not a tale, 'tis not a jest,
Admired with laughter at a feast;
Nor florid talk, that can that title gain,
The proofs of Wit for ever must remain."—*Ode on Wit.*

It is sometimes easy enough to account for the bias in the popular mind which has led to the desecration of particular terms. Let us take, for instance, the word "scandalous." This, in popular usage, is, we know, one of the most damnatory epithets that can be applied to conduct or character. Its true meaning points, of course, to a censure of a far milder description, being strictly applicable to such acts as might cause others to trip or stumble; as, the eating of meat, which, according to St. Paul, might distress a weaker brother. Here is "scandal" in its primary sense:—

> "And because no temporal law could touch the innocence of their lives, he (the King) begins with the persecution of their consciences, laying '*scandals*' before them."—*Milton, Eikonoclastes.*

Now Milton, of course, well knew the true and classical meaning of the word, and with this fully before his mind he uses the derivative as follows:—

> "Now that ye have either troubled or leavened the people of God, and the doctrine of the Gospel, with '*scandalous*' ceremonies, and mass-borrowed liturgies."—*Milton, Apology for Smectymnus.*

Poets, that lasting marble seek,
Should carve in Latin or in Greek.
We write in sand, our language grows,
And, like the tide, our work o'erflows.
Chaucer his sense can only boast,
The glory of his numbers lost." &c.—*On English Verse.*

Yet, so fortunate has Waller been, in spite of this prediction, that throughout his entire works there are probably not half a dozen words which would not be fully understood in the sense in which he uses them by almost every reader of the present day.

In all probability the word was in this, its primary sense, frequently appropriated to ceremonies; but a great many of those who applied it would do so without the slightest notion of its true distinctive force, but as implying simply that which was noxious and abominable; and just in proportion as ceremonies themselves became more odious, so from a party it would easily pass into general usage, with its present blurred and confused meaning, leaving us—and this is the great mischief—no other word to supply the place of the lost signification, whilst we have half-a-dozen equivalents for it in the sense in which it is now generally used—*i. e.*, as merely ringing a change of sound upon "bad," "vile," "atrocious," &c. It will be seen at once that the connection between scandal, in its primary sense, and slanderous backbiting, for which it is now current, is very slender indeed.

The word *imp* had its modern sense determined probably in a way somewhat similar. It meant nothing more than a sprig or offshoot. "The heavens thee guard and keep, thou royal *imp* of fame," says Pistol to Henry V. Spenser, we think, in every instance, uses it favourably, as in the following lines:—

"Orpheus, that, when strife was grown
Among those famous *imps* of Greece, did take
His silver harp in hand, them shortly friends to make."—*Fairy Queen.*

The pulpit was, we expect, the place where the imp was first blackened. Instances might be given in our own day of what might fairly be called stereotyped pulpit expressions: it might be disrespectful to offer specimens; however we can easily imagine, that instead of son or child, "*imp*" was the word which it was the fashion in sermons of an early date invariably to connect with the terms Satan, hell, darkness; until, finally, the use of the latter words became superfluous, and imp was sufficient of itself to signify a scion of the evil one. Indeed, in a similar manner, all words forming a part of familiar proverbial expressions, and of legal forms, of which the context is supposed to be known, have a tendency to gather into themselves, or to supply the sense of, the omitted words. Thus, with the Romans, "majestas" (majesty) came to signify treason, absorbing into itself the sense of the two words at first joined with it; namely, "crimen læsæ majestatis" (the crime or charge of injured majesty); so too, with us, "damages," for compensation for damages done.

There is yet another way, besides those we have mentioned, by which well-meaning words have gradually obtained currency in an offensive sense; *i.e.*, where guilty parties have themselves contrived or conspired to apply a modifying word to the offensive act. Thus, to quote Pistol again,—

Convey the wise it call;
Steal! foh, a fico for the phrase.

Now the effect of these attempts, when successful, may be in the first instance to lessen the sense of the impropriety of acts described by the softening appellatives; but the delusion will not last long, the old name for the evil will reassert itself, and the milder term will remain tainted and injured: we shall, in fact, have two words for the same thing—one proper, and the other illegitimate. Thus, the meddlesome man may call himself "busy;" and the niggardly, "saving;" leaving us, in saving, and busy-body, two words half ruined in sense without even the advantage of being diminutives, at least in the minds of any except of those who apply them to themselves.

But, of these different causes of the corruption of moral terms, that which we have chiefly dwelt upon has been unquestionably the most active, both in causing the corruption and perpetuating it. Excitement—and excitement is produced for the most part by moral causes—delights in accumulation, delights in repeating itself, though with some semblance of variety in its forms; and evil passions are far more stimulating than good ones. Indignation does not readily part with a single instrument that has been in any way prepared for its purposes; and malice, where it dare not speak out, is ever active in insinuations, only too well understood. Surely what has been here insisted upon is well worthy of remark. It might have been expected that, in the flux of social, political, scientific, philosophical systems, amidst the detections of error, the discoveries and rearrangement of truths, and the changes of opinion, that language would be slow in its obedience, and often unequal to its burthen, and this indeed has been the case; but, with a subject-matter almost unchangeable, the moral attributes and dispositions of man, we should reasonably have looked for more permanence and more perfection; instead of a second Babel, the structure of contempt and uncharitableness towards men, as the first was that of presumption against the Almighty.

It is curious to observe how certain minds, according to their individual turn or temper, seem to revolt against particular cases of this abuse, where they would pass without notice or even adopt other terms quite as objectionable.

> "Lest I should forget to mention it, I put down here a rebuke which later in his life Sir Walter once gave in my hearing to his daughter Anne. She happened to say of something, I forget what, that she could not abide it—it was vulgar. 'My love,' said her father, 'you speak like a very young lady; do you know, after all, the meaning of this word *vulgar?* 'Tis only common; nothing that is common, except wickedness, can deserve to be spoken of in a tone of contempt; and when you have lived to my years, you will be disposed to agree with me in thanking God, that nothing really worth having or caring about in this world is uncommon.'"—*Lockhart's Life of Scott,* VI. 61.

Sir Walter might have easily found many words far more anomalous and unreasonable; but we quote the above passage the more readily, because no one can charge Scott with scrutinizing language with the eye of a pedant, and we may be pardoned for scruples from which he, it would appear, was not altogether free. There is far too much disposition in men of letters generally to acquiesce in popular usage, except, where, for argument's sake, rigid definition is required; and we are glad to find an instance of rebellion against that power, in which are said to reside

Arbitrium, et jus, et norma loquendi.

PRACTICAL HINTS FOR THE SCHOOL-ROOM.—A LESSON ON NATURAL HISTORY.

The following sketch of a gallery lesson on natural history may be of use to those teachers who have not had the advantage of a regular systematic training in the art of conveying instruction orally, and to those also whose duties deprive them of leisure time to devote to the subject. The only remark necessary, is a caution, that teachers be careful not to prompt too much in eliciting the answers. Modify and illustrate the question, and try to turn to account mistaken answers; but do not divulge the secret. The questions are plain and natural, and have had the advantage of a practical application to a large class. The observations inserted between the questions are merely suggestions to the teacher, to be developed and illustrated *ad libitum.*

I have often told you, children, that we are living in a world of wonders. Everything we see, above, around, on all sides, wherever we bend our steps, is full of interest and instruction. All the trees of the fields, with their leaves, and flowers, and fruits; the kind and grateful earth, which gives us richly all things we enjoy; the seasons, with their changes of seedtime and harvest; the mild sunny days of spring, with the chilling blasts and snows of winter; the refreshing rains and morning dews; all these come in their season, teeming with lessons of instruction. And we might find conversation for hours in these interesting subjects. But, as we have only one hour to spare, we must confine ourselves to one subject; and this shall be a lesson on the animal world.

Tell me then, first, what an animal is. [*No answer, or a wrong one.*]

You know what a plant is; would you call a plant an animal? *No, certainly.*

Why not? Where is the difference? *An animal has life.*

So has a plant or tree, or they would not grow; but do you observe no other difference? [*They will mention legs and tails. Then show them that all animals have not these parts. Point out to them their errors, and they will eventually discover that animals can move about, but that plants and trees cannot.*]

Can all animals move about? *Yes.*

Can any plants? *No.*

Now answer me the question. What is an animal? *An animal is a thing or creature which has life and motion. It can feel, breathe, move.*

Where do we get an account of the first animals? *In the first chapter of Genesis.*

On what day were they created? [*Probably they will say the sixth.*]

Were all animals created on that day? *No.*

What was the work of the fifth day? *Fish and fowl were made out of the water.*

Then on what days were animals created? *On the fifth and sixth.*

Can you tell me the four different kinds or classes of animals mentioned by Moses in the first chapter of Genesis? [*Give them time to think.*] *Fowls, fishes, beasts, and creeping things.*

In which of these classes would you put bees, wasps, and butterflies, &c.? Are they fowls or creeping things? *They are both. They fly and creep too.*

Then suppose we put these little creatures in a class by themselves. What shall we call them? *Insects.*

I dare say you have seen thousands of insects flying and creeping about in the warm summer days; did you ever think of what use they can be to man? You can tell me two particularly useful—What are they? *The bee and the silk-worm.* [*Tell them something about these insects.*]

And there is another little creature, to which the wisest of men advises all idle people to go in order to learn how to be careful and industrious. What is that? *The little ant.*

Now I have no doubt all the other insects are quite as useful as these, but we do not know all their value. I can tell you how they benefit man,—they eat up all his wasted food; they take away dead and offensive matter from our streets and lanes, which would otherwise pollute the air we breathe, and bring fevers and other diseases; and sometimes God makes use of them to punish man, as he did the Israelites of old. When do I mean? *See the plagues of Egypt.*

Now how does he punish us in a similar way? *He sends blights and wire-worms, &c., to eat up our crops.*

Before we leave the insects I must tell you that there is one which you have often chased about the fields, which is found in nearly every country in the world. What do I mean? *The lady butterfly.*

And there is one country in the world in which no insect has ever been seen.—Would that be a cold or hot country? *Cold. It is Spitzbergen.* [*Point to it.*]

We shall talk about insects another day. Now, besides these five classes of animals which live *on* the earth, *in* the earth, *in* the water, and *in* the air, there are some which live partly in one place and partly in another,—partly on land, partly in water. These are called *amphibious* creatures. You can tell me of two very common amphibious animals, if you will think. *Frogs and toads.* [*Tell them also of lizards, crocodiles, tortoises, turtles, serpents, sharks, &c., which will interest much; also of ducks, geese, and other water birds which take to the air as well as the water and the earth.*]

Remember these six classes of living creatures, and you shall know more about them another day.

Which is the noblest animal in creation. *Man.*

What makes him superior to all others? [*Give them time to think.*] *He has a mind and soul—was made in God's image—not by a single command as other creatures, but it was said, "Let us make man."*

How does man show that he is superior to other creatures? *He can make them serve and obey him, and can do other things which no animal but he, can do,—he can make a fire, can cook his food, and clothe himself.*

Do you know any other animals which clothe themselves? *No.*

How are they provided with clothing? *God takes them under his own care.*

Why does he not clothe men? *Perhaps it is to keep them employed and industrious, and to make them depend upon one another.* Strange to say, millions of men are employed in making the simplest article of dress. If it be wool—there must be farmers and shepherds, wool-staplers and carders, dyers and scribblers, spinners and weavers, fullers and dressers; then merchants, with vessels to fetch dyes, &c.; and to make the vessels there must be ship-builders, carpenters, blacksmiths, sail-makers, rope-makers, and many many others. Besides, God has given man reason to contrive, as well as strength and materials to execute; and so man is very well able to clothe himself. And by clothing himself man can fit himself for every season and climate in the world.

Are all animals clothed or covered alike? *No.*

Mention the various coverings with which God has clothed his helpless creatures. *Cows, horses, dogs, &c., with hair; sheep with wool; rabbits, hares, beavers, &c., with fur; birds of all kinds with feathers; pigs and wild boars with bristles; porcupines with quills; hedgehogs with prickles; fish with scales and shells, &c. &c.*

Which of these coverings do you think the warmest? *Fur.*

Now who did we say clothed the animals? *God.*

Then in what countries should we expect to find them covered with fur? *In the coldest countries.*

Yes; and so it is. God has kindly covered animals in the hottest regions of the earth with a thin light coat of hair, such as we find in the ape and other monkey tribes, but in the cold north they have a thick and warm coat of fur. Even the wool of the sheep changes with the climate, until at the equator it becomes fine hair.

Then what do we learn from the covering of animals? *That God is not unmindful of His creatures; that His providence is over them continually; and that He is a God of love and kindness.*

Now, although man is so much nobler than other animals, I cannot say that he is always better than they; for God often sends him to His inferior creatures to learn his duty. Tell me to what animals he is sent besides the poor little ant. *He is sent to the ox and the ass, to learn gratitude to Him who feeds and takes care of him. For "the ox knoweth his owner, and the ass his master's crib, but my people doth not consider," says God, by his prophet.*

He is sent also to the fowls of the air, to learn contentment and trust in God. "Behold the fowls of the air," says the Saviour. They have no storehouse nor barn: they cannot lay up food for the future, as the ant: yet they are contented with their lot. They do not complain or murmur in their lowest state, but will sit and sing in a naked bush on a cold winter's night, when the wind is howling and the snow drifting through it; hungry, perhaps, and not knowing where to get a morning's meal.

He is particularly sent to the stork, the crane, and the swallow, to learn to recognise the visitations and judgment of God. "For the stork in the heaven knoweth her appointed times," says God, by his prophet Jeremiah; "and the turtle and the crane and the swallow observe the time of their coming; but my people know not the judgment of the Lord: they know not the day of my visitation." Who teaches the birds of passage when to go, and when to return? Who leads the poor swallows over the frightful ocean, the deserts and mountains of the earth? How should they know that one country is so much better than another?

He is sent also to the dove and the serpent: to the one to learn wisdom; to the other, to learn harmlessness and love.—"Be ye wise as serpents, and harmless as doves."

See Job, chap. xii.—"Ask now the beasts, and they shall teach thee; and the fowls of the air, and they shall tell thee; and the fishes of the sea, and they shall declare unto thee."

You can tell me, perhaps, who is called the *Lion* of the tribe of Judah—the *Lamb* of God—the *Sheep* before the shearers.

And I wish you would try and discover, before our next lesson, what is said in the Bible about the camels of Egypt, and some destructive locusts; about fiery serpents in a desert; about two she-bears, and the ravens which fed a prophet; about the lions which were sent to punish a people for their impiety; and about a den of lions; and another lion worse than a thousand dens of wild beasts; about the cruel ostrich and the noble eagle; and five little sparrows.

And you may tell me, also, what is said about an ass and colt, a hen and chickens, a cock which crowed, a viper which did not bite, and some men like vipers which did bite; about a fish with money, and a herd of swine.

[These should be written down by the children, that they may take them home and think of them. This will be found an interesting and instructive introduction to natural history.]

A LETTER ON THE BIBLE, TO A SCHOOLMASTER.*

BY A LAYMAN.

MY DEAR J———,

You ask me for some explanation and illustration of my assertion, that "the Bible is the true manual of education of ourselves and others." These I will endeavour to give you as well as I can; though the countlessness of my riches, I mean of the proofs and instances of this position, confuses me, accumulating as they have been from the days when it was said, "Ye shall lay up these my words in your heart and in your soul, and bind them for a sign upon your head, that they may be as frontlets between your eyes: and ye shall teach them your children, speaking of them when thou sittest in thy house, and when thou walkest by the way, when thou liest down, and when thou risest up: and thou shalt write them upon the door-posts of thine house, and upon thy gates; that your days may be multiplied, and the days of your children, in the land which the Lord sware unto your fathers to give them, as the days of heaven upon the earth"—up to to-day, with its "first and second *Lessons* appointed to be read in all churches." My task will, however, be easier, and more likely to be executed in a practical manner, if I limit myself to showing, that the heart and mind of an Englishman can only be rightly developed by the study of the Bible, and that consequently it should be the main business of every English schoolmaster, of whatever rank, to get a deep insight into the meaning of this book, and to impart the same to his scholars: the more knowledge of all kinds the better, only let the Bible be the centre and life of it all—"the master-light of all our seeing." If I can show you this of English education, you may apply it to any other nation if you have a call to do so; if I can show the connection between the Scriptures and our life upon earth, it will be by recognising their relation to all that concerns the life to come, though I may not enter largely on the latter subject.

I call the development of the heart and mind education; for the heart and mind make up *the man* in each of us, and the proper business of education is, to draw forth this man from the bondage of the animal life and restore him to freedom; to make him a lord over that nature to which he was before a slave; to revive the lineaments of the divine image in him, and to bring him into communion with his Maker. The *heart* is awakened and trained by means of relationships, which relationships are embodied in institutions—in organic living societies, which we call respectively the Family, the Nation, the Church. Consider a little the meaning of the word *home*, the first, though not the only inestimable birthright of the English child. He comes into the world with a nature in which all animal and selfish tendencies grow rapidly in every direction, though all leading to degradation and misery; but to these the constitution and influences of home provide a steady, though most gentle, resistance, while they habitually appeal to, and call forth, the counteracting human affections in the child himself. Each member of the family exerts a distinct influence upon him, while each deepens the influence of all the rest. The father's authority, dignity, strength, are reflected in the mother, and make the child's love for her obedient, reverential, and trustful; and in like manner the mother's love, gentleness, devotedness, temper the father's authority, and teach him to yield affectionate and confiding obedience to it: in his intercourse with his brothers and sisters he learns kindness, forbearance, and sympathy, and finds a sphere fitted to his capacity for practising those virtues which he sees, surrounded by a mysterious sacredness, in the character of his parents. All the household rules and customs to which he is daily and hourly subject, awaken in him the sense of a settled constitution and order which he did not make, does not uphold or comprehend, but of which he continually perceives his father to be the centre and his mother the regulator, and which he feels to be present with him in all his ways, upholding and comprehending him. Nay, all the inanimate things about him, the house and the furniture, which belonged to his father's father, or were bought by his father's money, the room or the bed which he calls his own, the clothes which he wears, all subserve to the same moral end. I will not go into farther details, but leave you to carry out my method yourself; you will find no single specimen of a family which is perfect; for the defects of one or both parents, the pressure of circumstances, and the root of sin which is everywhere within and without us, constantly obliterate or distort many features of domestic life; but some will show themselves in one case and some in another, and if in any they are all wanting, you there instinctively refuse to give the name of home. Neither will any single household exhibit the working of all relationships in their fullest form: the boy who goes to sea at twelve, or into the army at sixteen, may be as dutiful to, but must be more independent of his parents, than the son who remains at home to share and eventually inherit his father's occupations; the position of the married daughter is not the same as that of the unmarried, and so on. Perhaps no relationship ought ever to become quite extinct; but the proportions of them must vary indefinitely according to the age, rank, and all other conditions of their subjects, and especially by reason of the union of all particular families in that larger society which we call the nation—a union which requires and produces an incompleteness in each, in order that there may be a more superabundant fulness in all.

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* It may be proper to state that some portions of this letter appeared in the "Educational Magazine," edited by Rev. F. D. Maurice, in 1840.

The English child is born into his nation and into his family at once; his country lies about him from the first as really as his home does; but when the former begins to exert a distinct influence upon him, the second stage of his moral education, of the training of his heart, may be said to commence. May be said—for you must not forget, that as often as we attempt to speak of those realities which are not to be handled, counted, or weighed, all language becomes inadequate to express their immensity, and we are often obliged to use a series of *successive* descriptions to explain things which are *simultaneous*, and to speak of that which *lives* and *grows* as though it were a piece of mechanical art. No words of mine can give you more than a slight diagram of the institutions of the family, the nation, and the Church, which I am now considering; they are "buildings not made with hands;" and, if you would really understand them, you must meditate in silence on them themselves, making such use of the diagram as you can.

We may say, then, that the second or national stage of an Englishman's moral training begins at *school*. At home the boy obeys his parents, and is kind to his brothers and sisters, because they are his parents and brothers and sisters, and consequently the objects of his affections; but his master is not his father, his schoolfellows are not his brothers; yet here too he must learn to obey the one and be kind to the other, though after a different and sterner manner. Justice, not love, is the principle of the school; the boy is required to obey laws, his conscience is awakened, he is trained to distinguish habitually between right and wrong, justice and injustice, that so he may be delivered from his natural tendency to self-will, and to the practice of fraud or tyranny towards all who are not bound to him by family ties. Now all these distinctive features of the school are the very characteristics of our national life also; the former is only an anticipation of the latter, to the end that, by beginning thus early, we may be the more secure of getting good citizens in mature age. This is no fanciful resemblance, but a most real and practical analogy; and one from which, if you study it, you will derive much light in reference to your duties as a schoolmaster. Look into it, and you will see that school education is intellectual, moral, religious, but, above all, *political,* in the proper sense of the word. Strip the object you aim at of all its accidents and concomitants, in order to see it as it is in its very essence, and you will see that this is its characteristic, and what characteristically distinguishes it from other kinds of education. You are not a university professor, and therefore your prime object is not to make learned students; you are not a father, and therefore it is not to make affectionate and dutiful children; you are not a clergyman, and therefore it is not to make pious Christians: but you are a schoolmaster, and your business is to make good *citizens.** Ask yourself why the parish school and schoolmaster are called "National;" why Parliament, and the State, through its civil functionaries of the Privy Council, takes such an active interest in, and oversight of, your office; and you will find that this, and nothing but this, is the reason. The more you possess of the spirit of the scientific professor, of the parent, and of the minister of the Gospel, the more thoroughly you will do your work, and you will do it very ill if you have not something of all these; they will ever be necessary helps to you, but they will still be means to *your* end, and not to their own. You are emphatically a ruler. "Schoolmasters deliver us to LAWS," says the poet. Look back on your own experience as a schoolboy, and around you on your own and other schools and schoolboys, and see if a school is not always rightly conducted, and instinctively felt to be so by the boys, in proportion as it is governed by laws, by strict and just rule, and not by caprice, even though it be the caprice of kindness and affection. The good schoolmaster is the just one; he who habitually subjects himself, no less than his scholars, to fixed laws, condemning caprice in himself as severely as disorder in the boy. There is no lack of kindness, but I fear much of justice, among our schoolmasters; and kindness alone will never call forth in the schoolboy the feeling of conscience, nor the love of uprightness. Schoolboys love justice far more than kindness: if they have the latter at home, they care but little for it at school; but nothing can make amends to them for the want of the former, either as regards their present happiness or the lasting effects upon their character. Hence the different feelings with which a public and a private school are usually looked on by the boys of each; hence, too, the dislike which all schoolboys have to female interference with them. King David, chosen of God as a man in whom He would reveal and set forth the true principles of kingship and government, in those last words in which he reviewed his past life, declared that "he that ruleth over men must be JUST, ruling in the fear of God." And this idea of constitutional sovereignty might be illustrated by contrasting it with that mode of government which the Greeks called "tyranny:" they did not at all necessarily mean by a "tyrant" a cruel ruler, but one who had possessed himself of power without right, and exercised it, even if mildly and beneficently, according to his mere arbitrary will, and not according to laws. It is on this cardinal point of law or justice, (for justice is but law in operation, as law is justice embodied in rules,) that the analogy between a state or nation and a school turns. This then is the second—the national or school—relation, and stage of moral training: it does not supersede the domestic relation; but it meets a new and wider case which this cannot meet, and leads us on a step farther in our education.

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* [But if it be the prime object of the schoolmaster to make good citizens, is not the most effectual method of accomplishing this, to teach children in the first place, their duty to God, and their duty to their parents? And, if so, is not the distinction pointed out in the above sentence, and illustrated in the following one by a reference to the word 'National' and to State oversight, of somewhat doubtful propriety?—ED.]

But here you will say, that though you like my theory very well, and though you see it shadowed forth everywhere around you, yet it seems to be only a shadow and no substantial reality: that you find English family life everywhere cultivating the affections, but too commonly as the foster-parents of new forms of self-indulgence; while in the Nation our boasted reverence for law and order no less frequently ministers to a cold calculating regard to self-interest, and to a heartless indifference to our fellow-men in the pursuit of it. I confess, while I lament, the facts: but I think we shall get an explanation of them, and a clue to the remedy, if we consider a little what the *Church* is, and what its relation to the Family and the Nation. The word Church, you know, means "the Lord's House," or "Kingdom;" and as often as we say "I believe one Catholic and Apostolic Church," we recognise the fact that such a Kingdom of Christ has been set up in the world, and still continues to be regulated and governed by fixed laws and according to its original constitution, and that all men are called to come into it; and we assert that this same kingdom is lying round us, and that we ourselves have been made members of it. Now the great aim and end of the Church is, to awaken and bring to good effect in us the desire of communion with God and with our fellow-men, and of holiness as the condition of that communion; and this by showing us on the one hand the depth of sin that is in each of us, and on the other the life eternal which is given us in our Saviour, and by training us habitually to renounce the former as an incumbrance and pollution, and to claim the latter as our true spiritual birthright. By exhibiting this as the ultimate end of all education, and in actually bringing us to that end, the Church explains the meaning and worth of those previous stages in our moral training. "He that loveth not his brother whom he hath seen, how can he love God whom he hath not seen?" How can we know our Heavenly Father, if we have never acknowledged the authority of our earthly parents; how can we stand in the courts of the King of kings, if we have never learnt what loyalty and duty to Queen Victoria are; how can we conform ourselves to the Christian "Law of Liberty," if we have not practised obedience to the laws of England; or how can we be capable of fellowship with "all the company of heaven," if we have not first learned to love our kinsmen and fellow-citizens? But on the other hand, the Church, in unequivocally asserting the fact of a "fault and corruption of the nature of every man," points out an inherent vice which cannot fail to counteract the moral influence of all our domestic and political institutions, and thus occasion that unsubstantial result which, as we have seen, is too common. The Church has pointed out the secret canker, but she has also provided a remedy for an evil which affects the very existence of these her main auxiliaries in performing her appointed work in the world. As the nation embraces all the households in the land, and makes our family life more vigorous while it superadds a new element; so the Church recognises and actually adopts both the family and the nation as her children, infusing a new and holy life into the old organization at the same time that she completes what it has left undone. In this Christian land the nation and the family are Christian also. If you will meditate on what are usually called the state prayers and services in the Prayer-Book, on the Coronation service, on the fact that both Houses of Parliament begin their daily sittings with prayers, and that every assize is opened by the judges' attendance at church, (and I believe you will find that all other important national acts and interests are consecrated in like manner, unless where there has been some relaxation to meet those practical departures from the ideal of a national, or indeed catholic, Church, of which it is easier to deplore the bitter consequences than to see the remedy); you will see how the nation is properly called Christian. The services of "Holy Matrimony," "Churching of Women," and "Baptism of Infants," show the same in reference to every household which they have hallowed; while the last-named rite has of course a still further significance as the witness of the personal incorporation of each of us into the Church, and of our own interest in those blessings which I spoke of above as the ultimate end of all education. This then is the remedy for the defect which by reason of sin is inherent in all earthly relationships, and it is not more effectual because we refuse to believe in its efficacy, or, what is the same thing, in the fact of its existence. When we have a living faith that Jesus Christ *is*—not may perhaps become—the actual upholder of our house, our school, and our country; and when we teach this constantly to our children, scholars, and citizens, first acting upon it ourselves, then we shall find that in these relationships, no less than in our personal condition, it is unto us "according to our faith."

Thus far I have endeavoured to explain what I mean by the education of the *heart*, in which I include the conscience and the will. It has often been asserted that this education of the heart is all that we want; for what, it is asked, need we or can we wish for, if we are raised out of all selfishness and sin, and brought into fellowship with God and our brethren?

I shall reply by a quotation from Coleridge's second Lay Sermon:—"It is impossible that the affections should be kept constant to an object which gives no employment to the understanding. The energies of the intellect, increase of insight, and enlarging views, are necessary to keep alive the substantial faith in the heart. They are the appointed fuel to the sacred fire. In the state of perfection all other faculties may, perhaps, be swallowed up in love; but it is on the wings of the cherubim, which the ancient Hebrew doctors interpreted as meaning the power and efforts of the intellect, that we must first be borne up to the pure empyrean: and it must be seraphs, and not poor mortals, that can burn unfuelled and self-fed. 'Give me understanding,' exclaimed the royal Psalmist, 'and I shall observe thy law with my whole heart. Teach me knowledge and good judgment. Thy commandment is exceeding broad; O how I love thy law! it is my meditation all the day. The entrance of thy words giveth life, it giveth understanding to the simple. I prevented the dawning of the morning: mine eyes prevent the night-watches, that I might meditate upon thy word.' Now, where the very contrary of this is the opinion of many, and the practice of most, what results can be expected but those which are actually presented to us in our daily experience?" E. D.

(*To be continued.*)

GENERAL EXAMINATION OF TRAINING SCHOOLS.

Christmas, 1850.

FEMALES.

ART OF TEACHING.

Section I.—Write an essay on one of the following subjects:—

The best mode of discovering and correcting bad dispositions and habits in young girls.

The mode of instructing children between three and six years old.

The comparative importance of subjects taught in the first class of a good school.

Section II.—1. How would you propose to organize a mixed school consisting of eighty children between three and twelve years of age in an agricultural parish? What apparatus and books would you require?

2. Describe the best organization for an Infant School of 120 children.

3. Describe the organization, subjects, and methods of instruction best adapted for a girls' school of 100, between seven and twelve years of age.

ARITHMETIC AND BOOK-KEEPING.

Section I.—Prepare the notes of a lesson to explain—

1. The principles of numeration and notation.
2. The rule of long division.
3. Ratios and proportion.

SECTION II.—1. What will be the rent of a house for 3 years, 7 months, 4 days, at 17*s.* 6*d.* per week? Prove the sum.

2. If 14 men can mow 168 acres in 12 days of 8¼ hours each, how many can be mowed by 20 men in 11 days of 7¾ hours each?

3. If 7 needlewomen can finish a certain quantity of work in 10¾ days of 9¾ hours each, how long would it take 3 to do twice the same work, reckoning 10 hours to the day?

SECTION III.—1. Find the interest on 639*l.* 10*s.* from May 6th, 1848, to January 1, 1850, at 3*l.* 10*s.* per cent. How would you find the compound interest?

2. What is meant by discount? Find the discount on 1807*l.* 17*s.* due at the end of 2½ years, at 4¼ per cent.

3. If 236 yards of cambric are bought at 7*s.* 10½*d.* per yard and sold, one-fourth at 10*s.* 3*d.*, one-third at 8*s.* 6*d.*, and the remainder at 7*s.* per yard, what will be the loss or profit per cent. on the whole outlay?

4. Add together 0·0284 of a £ and 0·0234 of a guinea.

$$\text{Reduce } \frac{1{\cdot}23 \times 0{\cdot}0123.}{0{\cdot}079}$$

SECTION IV.—In answering one of the following questions give one example at least:—

1. What are real accounts? What is the rule for keeping personal accounts?

2. What books ought to be kept by a retail grocer? In journalizing, for what do you debit or credit stock?

3. How many cases of partnership are there? What books ought to be kept when the several partners take part in the management of the joint trade?

HOLY SCRIPTURE.

SECTION I.—1. Name the most remarkable persons in the book of Judges, and give a full account of Gideon.

2. Where, and under what circumstances, was Josiah slain? What allusions are made to his death in the prophetic writings? Describe his character.

3. At what times did Hosea, Micah, Nahum, and Zechariah respectively flourish? Give an account of the writings of one of these prophets.

SECTION II.—1. What prophecies describe the extent, duration, and character of Messiah's kingdom?

2. What is meant by a type and antitype? Show the typical character of the Aaronic priesthood.

3. Explain the distinction between the moral and ceremonial law, and quote passages from the Psalms and Prophets, showing the paramount importance of the former.

SECTION III.—1. Give a full account of St. Peter.

2. What points in our Lord's character are illustrated by his miracles? Which miracles have a judicial character?

3. What events are recorded in the Acts in connection with these places—Joppa, Paphos, Troas, and Thessalonica? What places did St. Paul visit on his last journey between Crete and Rome?

SECTION IV.—1. Give instances of zeal, disinterestedness, humility, and prudence from the life of St. Paul. What other graces do you remark in his character?

2. What institutions and observances of our Church are described in the Acts of the Apostles?

3. Give some account of the Epistle of St. James, or of the Epistle to the Hebrews?

CATECHISM, LITURGY, AND CHURCH HISTORY.

It is not necessary for a Certificate that the questions on Church History should be answered.

SECTION I.—Prepare the notes of a lesson on one of these subjects:—

country; and when we teach this constantly to our chi
and citizens, first acting upon it ourselves, then we sh
these relationships, no less than in our personal con
"according to our faith."

Thus far I have endeavoured to explain what
tion of the *heart*, in which I include the cons
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out of all selfishness and sin, and brough
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I shall reply by a quotation from
"It is impossible that the affectio
ject which gives no employment
of the intellect, increase of ins
to keep alive the substantial
fuel to the sacred fire. In
perhaps, be swallowed u
him, which the ancient
power and efforts of
pure empyrean: a
burn unfuelled a
royal Psalmist
Teach me kn
ceeding br
The entr
simple.
the ni
the v
mo
se

es between Advent
union, beginning with
Prayer revised? Give an
irm touching the Creeds, *the*
nd what do they teach concerning
e Church in the articles? How is its
the most distinguished martyrs of the early
the last persecution before Constantine.
the first four centuries? What heresy *was*
Nice?
Papal power.
the most celebrated divines in the reigns of
and give a brief account of Bishop Jewel.
countries was the reformed religion established in
Name the most remarkable divines of that period.

DOMESTIC ECONOMY.

Section I.—1. Supposing the calico for a shirt to be 14 nails in width and 2 yards 2 nails in length, what will be the exact proportions and the number of pieces in the shirt?

2. What wages may a house-maid expect to earn in a gentleman's family? State exactly how much she ought to spend yearly, and in what manner. Calculate how much, upon such wages, she ought to save by the end of ten years' service, including the interest of the money if invested in a savings bank.

3. Supposing a schoolmistress to receive 35*l.* per annum with apartments, calculate exactly what she ought to spend for clothes and food. What portion of her income ought she to lay by? In what manner should it be invested in order to secure a provision for old age, or infirmity?

Section II.—1. What time is required for roasting or boiling a joint of 8 lbs.? Compare the expense of roast and boiled meat, giving the reasons for your opinion. What kitchen range is best for a cottage?

2. Where are arrow-root, tapioca, and sago produced? How are they prepared for a sick person? What use can be made of oatmeal and barley? State the price of these articles.

3. What do you consider the most nourishing economical dinner for a cottager's family? Calculate the exact cost of food per week in such a family, of seven people, the children being between four and twelve years old.

Section III.—1. How should linseed meal and mustard poultices be prepared? On what occasions are they usually applied? How should a blister be dressed?

2. Give an exact account of the treatment for scalds and burns. What should be recommended for whitlows or ringworm?

3. Show the effects of bad ventilation, bad water, and imperfect draining. What practical directions should be given to a cottager on these subjects?

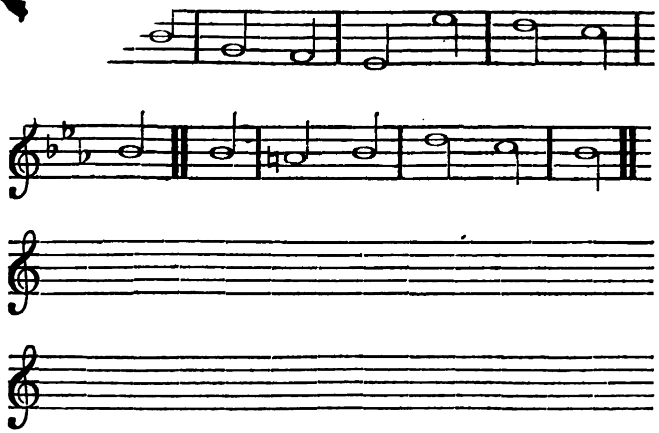
Section IV.—Prepare the notes of a lesson on one of the following subjects:—

1. Wastefulness in cottage economy.

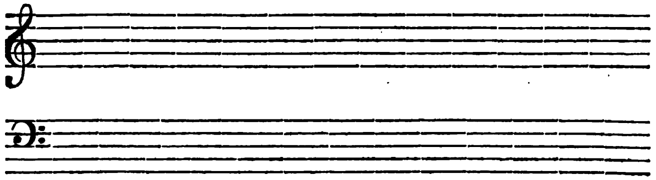
nduct in a sick room.
ts that have a tendency to impair or to improve health.

MUSIC.

-Explain the following terms :—
me, interval, signature.
matic, discord, modulation.
rmonic.
in what key the following passage is written, and
blank staves in the key of the sub-dominant.

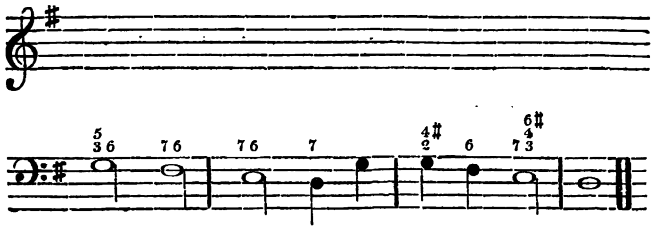


Section III.—Write for the above passage on the blank staves below :—
1. A second.
2. A second and a bass.



Section IV.—Give notes of a lesson to children :—
1. On the scale.
2. On the signatures of keys.
3. On modulation.

Section V.—Write chords for the following figured bass, and mention any discords or modulations that occur.



GEOGRAPHY AND NATURAL HISTORY.

SECTION I.—1. How are day and night, and the changes of the seasons caused?

2. Explain and illustrate the terms "hemisphere," "zone," "tropics," "archipelago," "estuary," and "snow-line."

3. By what causes are the principal currents of the atmosphere and ocean produced?

SECTION II.—1. Draw a map showing the rivers and mountains of England, Scotland, Syria, Hindostan, or the Canadas.

2. Describe the climate, physical features, and productions of one of the above-mentioned countries.

SECTION III.—1. In what parts of the world are the territory of the Hudson's Bay Company—California—New Zealand—Port Philip—Madras—Heligoland—Cape Clear?

2. Enumerate the mineral productions of England and Wales, and give some account of the districts in which coal and iron are found.

3. Describe the deserts of Asia. What names are given to uncultivated tracts of level country in Asia and America?

SECTION IV.—Prepare the notes of a lesson on one of the following subjects:—

1. Distribution and uses of water.
2. Food plants.
3. Geographical distribution of animals.
4. The mineral kingdom.

SECTION V.—1. To what classes of animals do the monkey, horse, bear, wolf, lynx, sloth, and kangaroo respectively belong? Show the adaptation of the structure of one of these animals to its habits of life.

2. Show some remarkable proofs of design and wisdom in the structure of the human frame.

ENGLISH HISTORY.

SECTION I.—1. Give a brief account of the institutions and manners of the Anglo-Saxons in the time of Alfred.

2. Who were the Normans? Describe their manners at the time of the Conquest.

3. Enumerate the Kings of the Plantagenet line. Give some account of the queens of the first three Edwards.

SECTION II.— 1. Trace the descent of Henry VII. Describe his character, and enumerate briefly the chief events of his reign.

2. Give some account of the second and the last wife of Henry VIII. What education did the daughters of that prince receive?

3. Arrange the principal events in English History of the sixteenth century in chronological order.

SECTION III.—1. Who were the principal agents or instigators of the persecution in the reign of Mary?

2. Name the principal ecclesiastics of the reign of Elizabeth. When, and for what reason, did the Roman Catholics cease to attend the service of the Church?

3. Trace the progress of the Reformation under the Tudor line.

SECTION IV.—1. Who were the principal statesmen in the reign of Elizabeth?

2. What females in English History were most illustrious for character or attainments in the sixteenth century?

3. What European princes were contemporary with Henry VIII.? Mention the principal events of their reigns which have a bearing on English history.

4. What advances were made in civilization from the accession of Henry VII. to James I.?

Section V. Give an account of some female remarkable for moral courage, filial affection, or active philanthropy.

GRAMMAR AND HISTORY OF THE ENGLISH LANGUAGE.

The last section may be omitted by the candidates.

Section I.—1. Make lists of words to illustrate the sounds represented by each of the vowel signs.

2. Arrange the consonants in order; which of them have variable sounds? When are s and d pronounced like z and t, and for what reasons?

3. State and account for the redundances and deficiencies in our alphabet.

Section II.—1. Define an adjective, a pronoun, a verb, and an adverb. How many kinds of adverb are there?

2. How many tenses are there? How are they formed? What is the power of each? Classify the irregular past tenses, or preterites, of verbs.

3. Define a preposition. Explain the meaning and give the derivation of the words "above," "beneath," "under," "among," "if," and "but." What part of speech is "than?" When is it followed by the objective case?

Section III. Write a clear and simple paraphrase of the following passage. Give the rules in syntax for the concord or government of the words in italics:—

He is the happy man, *whose* life e'en now
Shows *somewhat* of the happier life *to come ;*
Who, doomed to an obscure but tranquil state,
Is pleased with it; and, *were he free* to choose,
Would make his fate his choice; *whom* peace, *the fruit*
Of virtue, and whom virtue, fruit of faith,
Prepare for happiness, *bespeak* him one
Content indeed to sojourn *while he must*
Below the skies, but having there his home.
The world o'erlooks him in her busy search
Of objects more illustrious in her view;
And, *occupied as earnestly as she,*
Though more sublimely, he o'erlooks the world.
She scorns his pleasures, for she knows them not;
He seeks not *hers*, for he has proved them vain.
He cannot skim the ground like summer birds
Pursuing gilded flies, and *such* he deems
Her honours, her emoluments, her *joys.*
Therefore, in contemplation is his bliss,
Whose power is such that *whom* she lifts from earth
She makes *familiar* with a world unseen,
And shows him glories yet to be revealed.

Section IV.—1. Prepare a list of common words derived from the Anglo-Saxon language.

2. Give the meaning and derivation of technical terms commonly used in lessons upon Geography or Natural History.

Section V.—1. Give an account of the changes which the English language underwent until the time of Chaucer.

2. Enumerate the authors who flourished during the Tudor dynasty. Give some account of one of the most distinguished.

3. In what reigns did the following authors flourish:—Chaucer, Sir Thomas More, Spencer, Milton, Dryden, Addison, Cowper, Robertson, and Gray? Give some account of the writings of one of them.

THE GOVERNMENT CERTIFICATE, ONE OF ATTAINMENT RATHER THAN OF MERIT.

The following remarks upon the training and qualifications of teachers, and upon the Government certificates as tests of competency, are well worthy the attention of all who take an interest in the education of the poor. They are extracted from a statement, drawn up by the Council of the Whitelands Training Institution, in consequence of a communication addressed to them by her Majesty's Inspector of Schools, the Rev. F. C. Cook, requesting an account of the course of instruction pursued at Whitelands, and the extent to which they wish it to be carried in each subject. After stating, among other things, that the usual period during which the children of the poor remain at school, is on an average eighteen months, and that period often interrupted by absence; and that there is little likelihood of its being much extended, the council proceed:—

> "If it be imagined that from such an education no good results can be expected, the answer of experience is—that in all well-conducted schools the results on the character and dispositions are great; that in many cases even such education fixes the tastes and principles of the child, and decides the course of his life. It can be no matter of indifference so to train students as to qualify them to effect results so important to the people. And the practical question for the council has been, by what system of training the students can be fitted to exercise a lasting influence on the hearts and minds of the young with whom once in their lives, and, in a large number of cases, for a short season only, they are thus placed in contact.
>
> "On this point the council record their clear experience, that the efficiency of the student is materially affected by the impression which is made while under training on her character and habits. Her future success as a teacher is found to depend less on her literary acquirements than on her moral qualities; and these are fixed by the degree to which religious principle is wrought into her heart and conduct. It is, therefore, on the religious character of the management of a training school, on the example of practical religion set by the managers, on the judicious discipline enforced, on the careful and persuasive instruction given in the Word of God, that the great efficiency of the system of training will be found primarily to depend. Whatever promotes this is material; what is unconnected with this is subordinate; all that interferes with this is injurious.
>
> "The council would add their conviction, that extreme demands for literary acquirements made on the limited time and powers of the pupils, if carried to such an extent as to overtask their physical powers, to prevent their concentration on essential points, and to exhaust their spirits, are not favourable to that moral formation of character on which the efficiency of the teacher is found to depend."

The Council state their opinion, that the cultivation of the intellectual powers of a student in a training school must not be imperfect or superficial, but equal to the demands of the times, and thoroughly accurate; such as will qualify a mistress to teach well those children who remain at school the *longest* period of school instruction. In stating how far they conceive that intellectual instruction should be carried, they lay down three leading principles:—

> "First, That the subjects selected for instruction as of primary importance (a thorough acquaintance with which must be considered indispensable)

should be those which will qualify the student to conduct efficiently the work of a good elementary school.

"Secondly, That these subjects (neither too numerous nor difficult to be compressed within a course of two years' tuition given to persons imperfectly prepared) should be so taught that the pupils may thoroughly understand what they go forth to teach.

"Thirdly, That the pupils should be trained, on a careful system, to teach in a clear and lively manner what they know.

"Under the last head falls the training system carried on by model lessons and the work of the practising schools, and by lectures on the art of teaching. Under the former heads are included a thorough knowledge of grammar and of the terms of the language, the simple rules of arithmetic, the forms and nature of common objects, a general idea of the outlines and structure of the earth and universe, some acquaintance with the great outlines of history, especially as they bear on Revelation, some information on the history of the church, and a knowledge of the leading events and characters of our own history; with a practical acquaintance with domestic economy.

"In order to prevent a range of subjects being chosen so wide as to compel an excessive and yet superficial reading, the council suggest that, after full consideration and free communication between the various existing training schools, a limited range of subjects should be selected, and the standard books from which they are to be taught should be named."

"In awarding the certificates, on which the future position of the teacher will in a great degree depend, the council think that the tests now adopted to fix their rank should be differently characterized. It will appear from their previous remarks, that they have been led to the conclusion that mere literary attainment, and even theological knowledge, is an incorrect test of competency; that a teacher of limited attainments will often, through her principle, energy, and temper, produce results far greater than can be secured by one of superior intellectual powers. The success of the teacher will, in fact, be proportioned, not so much to her literary qualifications as to her moral qualities, and will turn far more on her character and motives than on her knowledge and talents.

"And further: where the attainments of two teachers are equal, the success of the one who has been trained to teach in a clear and lively manner will surpass tenfold that of the untrained mistress. And the success of the teacher who has acquired self-control and desire for self-improvement will be steady and progressive; while another may, from the want of those qualities, deteriorate from year to year.

"The competency of the student, therefore, cannot be fully tested by the most careful set of questions which an examiner can propose. Such a test will only prove the capacity or readiness of the individual, not the character or competency of the teacher. The council have remarked that some of their best students—those who are found in after-life to conduct schools admirably, from the energy, devotedness, and Christian temper which they apply—are placed in the award of certificates below those who are vastly their inferiors.

"The government certificate is therefore only a certificate of *literary attainment*. It marks the progress of the student in her intellectual acquirements, but it is silent on those far more important points on which her success as a teacher will depend—her capacity to teach others, and her religious character. These, therefore, must always be ascertained by a careful reference to the parties who alone can know them, the managers of the training school."

The council are of opinion with Mr. Cook, that Government certificates should rather be termed "certificates of attainment" than certificates of merit; and they see no objection to Mr. Cook's suggestion of introducing the rule, that the inspector should require from each student, before she is admitted to the Government examination, a certificate from the managers of the training school of her moral and religious character and conduct.

They also state that—

> "It has long been their opinion, that all students under training should pass through the infant-school department, and be carefully trained in an infant-school, as the best mode in which to begin their practice, and as obliging them to bring their knowledge down to the comprehension of the youngest, and to convey it with such vivacity as to interest them. It must also be borne in mind, that in the mixed schools of our country parishes the schoolmistress has to teach children of various ages, and should therefore always be qualified to instruct infants."

We have the greater satisfaction in inviting attention to the foregoing observations, because we conceive, that, if the Government certificates were given under the conditions here suggested, many of the objections raised against them would be removed; and they would in a great degree cease to afford that encouragement to mere cleverness, apart from moral worth and aptness to teach, which is to be so much deprecated in the selection of teachers.

SUGGESTIVE QUESTIONS IN PHYSICAL GEOGRAPHY.*

(*Continued from page* 418.)

1. WHAT is the atmosphere? of what gases is it composed, and in what proportion are these gases found in it?

2. How is the atmosphere retained close to the earth's surface? Explain how its purity is kept up, and the relative proportions of gases in it maintained.

3. State some of its physical and mechanical properties. At what height does it cease to refract the rays of light?

4. What pressure does it exert upon each square inch of the earth's surface? Express numerically the weight of the atmosphere in tons.

5. To what properties of the atmosphere are winds to be referred?

6. Explain the causes of winds, and give examples of the expansion of bodies by the application of heat.

7. Why does heated air ascend? by what experiments may this fact be shown?

8. What is the principal agent in producing winds?

9. How is the equilibrium of the atmosphere destroyed?

10. How is the velocity of the wind ascertained? What names are given to the varieties of winds? Into what three classes may winds be divided?

11. What is meant by variable winds? Where do they prevail?

12. What general laws have been established respecting the variablewinds?

13. Account for the cold winds of southern Europe; name some of them, and point out the countries visited by them.

14. How are hot winds produced? What regions are exposed to them, and how are they variously termed?

15. State some particulars respecting the simoom. How is this wind described by Burckhardt and by Volney?

16. Where does the harmattan prevail, and what are its effects?

17. What is the sirocco? What countries are visited by it, and how does it affect animal and vegetable life?

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* These questions have been constructed upon Chapters VII. and VIII. in Hughes's Outlines of Physical Geography, 2nd edit.

18. What are the trade winds? Where only can they prevail? Give briefly the theory of Halley and Hadley respecting them.

19. What are the monsoons, and what does the name signify?

20. Point out upon the map the regions of the monsoons and typhoons, and describe their effects.

21. Explain fully the causes of land and sea breezes. What are etesian winds, and where do they occur?

22. Point out the zone of calms, and describe the phenomena occurring in it.

23. What terms have been applied to the various rotatory movements of the atmosphere?

24. What general laws have been established in respect to these movements, and by whom were they investigated?

25. What practical advantage does a knowledge of these laws give the mariner?

26. What instrument indicates the approach of the aërial movements alluded to? How is the instrument affected? Explain its construction.

27. Give Dr. Arnot's description of a hurricane in which he was present.

28. Point out the regions visited by these rotatory movements.

29. How is evaporation from the earth's surface caused?

30. What terms are applied to visible vapour suspended in the atmosphere?

31. When is the air said to be saturated? How can it be made to hold a large amount of moisture?

32. What is meant by the dew-point?

33. Distinguish between dew and white frost.

34. State some of the experiments that have been made respecting dew.

35. Why are some bodies covered with dew sooner than others?

36. Upon what does the formation of dew depend?

37. Explain the formation of white frost and of hoar frost.

38. How are fogs produced? Account for the colour and density of London fogs.

39. What are clouds? How are they formed? Name some of their uses.

40. To what is the formation of clouds due?

41. Explain how clouds become rain.

42. Give the classification of clouds.

43. Explain the process by which the waters of the ocean, of rivers, and of lakes supply rain.

44. Why does rain fall in drops? State some of its effects upon organized life.

45. What are the principal phenomena of drought? Point out some of the rainless districts.

46. Why does more rain fall in mountainous than in level districts?

47. Point out the zones of the variable and of the periodical rains, and of constant precipitation.

48. Account for the twofold rainy season within the tropics. Give Humboldt's description of the rains of South America.

49. Explain why more rain falls in equatorial than in temperate regions.

50. Contrast the tropical and extra-tropical rains. What is the mean annual quantity of rain precipitated in the Old and New Worlds?

51. Account for the eternal verdure of tropical regions.

52. Mention the rainy winds of Europe and America.

53. Trace out the Atlantic sea-board in Western Europe.

54. Account for the rainy winds from the Atlantic not reaching the countries skirting the Mediterranean.

55. Give the relative quantity of rain in the following districts, viz: the east and west coast of England, the coast of France and Holland, Central Germany and Petersburgh?

56. Show the influence of rains on tropical rivers.

57. Account for the formation of snow and of hail; and state what you know of the form of snow-flakes and of hail-stones.

58. Give Darwin's account of a hail-storm in South America?

59. Mention some of the purposes fulfilled by snow in the general economy of nature.

60. Give Humboldt's definition of climate?

61. Under what condition of the earth's crust would the climate of places equidistant from the equator be uniform?

62. Enumerate the causes which determine physical climate.

63. Where upon the earth's surface is the amount of heat greatest, and why?

64. Explain the term, "Point of direct sunlight."

65. Show the relation between the latitude of a place and its climate, and between elevation and temperature.

66. Where upon the earth's surface is there exhibited an epitome of the different climates and vegetable productions?

67. Give the elevation of the culminating points of the Andes, Himalaya, and Alps; also the elevation of the boundary line of the principal forest-trees and of the bread-corns.

68. How does Humboldt account for the annual mean temperature of the American continent?

69. What part of the day is the warmest, and why?

70. Illustrate the effects of aspect upon climate.

71. Why are clayey soils unhealthy? Give examples of this fact.

72. How does the cultivation of a country affect its temperature? How have the climates of Europe and of North America been modified?

73. What are isothermal lines? Isothermal zones? How are the former laid down?

74. What are isotherals and isochimenals?

(*To be continued.*)

Correspondence.

ON TRANSLATION INTO GREEK AND LATIN.

Sir,—Having seen in your number for January last, a letter addressed to you by "M. A., Oxon.," recommending that boys should always be made to parse when they construe Greek or Latin authors, I wish to speak of the importance of translation of English into the classical languages, in producing accurate scholarship, and perhaps more intimate acquaintance with the structure of English, as well as of the classics, than is usually obtained by merely construing. The exercise of the mind in translating English into Greek or Latin is, I think, greater than in rendering the Latin into English. Proficiency in translation into the classics is more difficult of attainment, and when attained, more satisfactory than proficiency in construing them into English; and the corresponding idioms of the different languages are more surely ascertained by translation into the classics. In this exercise the grammar and lexicon must be searched deeply and closely, the grammatical structure of the English subject-matter must be thoroughly examined, and some, perhaps great, ingenuity must be displayed in clothing this matter in a suitable new dress. While the schoolmaster makes his scholars construe and parse, he must not omit to exercise their minds constantly by giving them select, and only select, pieces of English for translation into the classics. As an illustration of these remarks, and in order to relieve the dryness of discoursing on an exercise of the mind, which is far from dry in itself, I subjoin two specimens of translation into the classics from select and beautiful originals :—

When soft winds and sunny skies
With the green earth harmonize,
And the young and dewy dawn,
Bold as an unhunted fawn,
Up the windless heaven is gone—
Laugh: for ambushed in the day
Storms and whirlwinds watch their prey.

(*Fragment from Shelley's Poems.*)

Venti sunt positi, atque apricus æther
Terrâ cum viridi coire visus,
Eos, orta recenter, et madescens,
Audaxque, hinnulus ut canis sequentis
Expers, per spatium vacat serenum—
Ridete: insidias die sub almâ
Nimbus Turbinis instruit satelles.

Come, thou monarch of the vine,
Plumpy Bacchus, with pink eyne:
In thy vats our cares be drowned;
With thy grapes our hairs be crowned;
Cup us, till the world go round;
Cup us, till the world go round.

(*Song, Shakspeare's Antony and Cleopatra,* Act II., Scene vii.)

Κοίρανε, χαῖρε, Διωνύσου σθένυς, ἀμπελοφύτορ,
Ὃς λιπαρῶς λάμπεις ὄμμασι φοινικέοις.
Φροντὶς ἀμαυροῦται στυγερὰ, ληνοῖο φανείσης·
Ἀμφιπόλους σε σέβειν δεῖ βοτρυοστεφάνους.
Πάντες ἰαίνονται, κυλίκων περινισσομενάων,
Ὥσπερ γαῖα τελεῖ κυκλοέλικτος ὁδόν.

Hoping that these remarks and fragments of translation will meet with your approval,

I remain, Sir, yours very truly,
A. M.

THE MAGIC LANTERN AS AN INSTRUMENT OF INSTRUCTION.

Sir,—Will you allow me to suggest, through the medium of your journal, that the magic lantern might be made an useful channel of parochial information to an extent which might be worth the consideration of the Committee of Council on Education, or of that of the National Society. Probably there are few clergymen who do not feel and regret their inability to impart to their parishioners, in a popular and attractive manner, the results of their own study of general subjects: and any facilities which could be devised towards establishing this link of communication betwixt the pastor and his flock, or even the schoolmaster and the people, would certainly be a great boon to any parish. To make a lecture interesting without pictorial illustration, particularly if the subject of it has only been gathered out of books, which with most clergymen and schoolmasters are the usual sources of information, is a very difficult and embarrassing matter. There are only few men who can make their words produce pictures of what they are describing, and the consequence is, that familiar addresses upon general subjects are not often attempted, and, when they are, seldom meet with success. Now a good picture before the eye keeps alive the attention of the audience, half explains the subject treated of, and stimulates the lecturer's own powers. He is perpetually reminded of his subject, and, under this influence, he becomes more like a traveller detailing his adventures than a mere student relating what he has been reading at home. In short, the tedium and dulness often perceptible at such meetings are relieved, and an interest ensured, whenever pictorial exhibition is introduced.

What occurs to me as a feasible plan, and one which might prove greatly assistant in spreading good general information is, that in grants made to church schools it might be worthy of consideration whether a two-guinea magic lantern would not be a most serviceable instrument, provided facilities were given for obtaining the loan of sets of slides illustrative, in a series of popular subjects, and with printed explanations. For instance, Nineveh and its remains; the colony of Canterbury in New Zealand; the ancient and present states of the Holy Land; persons and events connected with the English Reformation, &c., &c., are subjects fit to be brought before children and adults by the clergy: and I venture to think that it would *answer* in every way, where opportunity afforded of hiring at a small expense a series of good slides on such topics. These might be kept at the provincial depôts of the Christian Knowledge Society, or be circulated through the country during the winter months. If the clergyman or schoolmaster did not make the exhibition gratuitous (which would not be desirable), an admission of one penny would probably repay the cost of hiring the slides, and cover an insurance of them, even supposing their original value to have been 40*l*. or 50*l*.

That more frequent opportunities of addressing the poor collectively on such subjects, and in the way that has been hinted at, are much wanted, I am seriously convinced, from personal experience; and I have suggested the Magic Lantern as an instrument towards effecting this desirable communication, because I have often witnessed its interesting power on a village audience, when the exhibition was very inferior to what is here contemplated. Even supposing that no public aid could be obtained towards the purchase of a good lantern, I think that the opportunity of obtaining good slides would speedily make it a necessary article of furniture in most of our national schools. I should be glad to know what the schoolmasters think of this project, as well as ascertain the ideas of the clergy upon it.

I am, Sir, Your obedient Servant,

Ecclesfield Vicarage, ALFRED GATTY.
25 *Feb.* 1851.

Notices of Books.

A TREATISE ON THE CONIC SECTIONS; CONTAINING AN ACCOUNT OF SOME OF THE MOST IMPORTANT MODERN ALGEBRAIC AND GEOMETRIC METHODS. BY THE REV. GEORGE SALMON, FELLOW AND TUTOR, TRINITY COLLEGE, DUBLIN. SECOND EDITION. (Dublin: *Hodges and Smith.*)

We are extremely glad to see a second edition of this admirable treatise, and we most gladly take the opportunity of introducing it to our readers' notice. This work is not confined exclusively to analytical (*i. e.* co-ordinate) geometry, (though that forms the basis of the volume,) but treats likewise of those modern geometric methods due to the labours of Poncelet, Chasles, and others, who have cultivated the theory of curves with so much success.

It is not our intention to enter into an analysis of the work, or to point out what is most worthy of notice to the mathematician, for this might lead us into a discussion not very suitable perhaps to the majority of our readers. We prefer, therefore, confining ourselves to pointing out to the student, who may take up this volume without any previous knowledge of analytical geometry, to what portions of the work he had better confine his attention at the first reading. It may seem superfluous, indeed, for us to be at this trouble, seeing that Mr. Salmon himself has, in the table of contents, marked with an asterisk such parts of the volume as he would recommend beginners to study at a first reading. Doubtless the course thus marked out is a good one, and probably the best for students at Dublin University; but we are inclined to think that most of our readers, who probably know little or nothing of harmonic and anharmonic properties, &c., and who may have little assistance in their studies, will find the following course of reading better suited to their circumstances:—

Read chapters i. and ii.

Read chapter iii., omitting articles 43 and 44, examples 11, 12, and 13, art. 45; and examples 3 and 4, art. 46.*

Omit chapter iv.

Read chapter v., from art. 72 to art. 75 inclusive, omitting the remaining articles.

Read chapter vi., omitting articles 91 and 92.

Omit chapters vii. and viii.

Finally, read chapters ix., x., xi.; omitting articles 142 to 145, the foot-note at p. 141, and articles 153 and 154.

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* Perhaps some of our readers will find a difficulty with example 5, p. 32, from not knowing what a *complete quadrilateral* is, the definition of which we shall therefore add.

If A B C D be a common quadrilateral, (the reader will easily supply the diagram,) and its opposite sides be produced to meet, namely, A B and C D in E, and B C and A D in F, we shall have a *complete quadrilateral*, which thus has four sides and six angles (A, B, C, D, E, F); also if A and C, B and D, and E and F be joined, the *three* straight lines so drawn are termed its *diagonals*.

When the student shall have thoroughly mastered the course here marked out for him, he will have acquired a very fair knowledge of elementary analytical geometry, and possibly some of our readers may not have time for more. Those who may wish to prosecute this branch of mathematics further will of course now read all the portions previously omitted, as well as the remaining chapters (which are by far the most novel and interesting). He will thus obtain an amount of information respecting the conic sections, and the most elegant and powerful *methods* of investigating their properties, which is not, we believe, to be found in any English work except the present one, and possibly in no other work whatever.

Before concluding, we may observe that the student cannot take up the present volume (or, indeed, any other on analytical geometry) with advantage, until he shall have thoroughly mastered Euclid, and good treatises on algebra and analytical trigonometry; and he must be acquainted with so much of the theory of equations as to know that every equation,

$$x^n + p\,x^{n-1} + q\,x^{n-2} \dots + t\,x + u = o,$$

of the n. th. degree, has n roots real or imaginary; that if $a, b, c, \dots k, l$ be these n roots, then,

$$x^n + p\,x^{n-1} + q\,x^{n-2} \dots + t\,x + u$$
$$= (x-a)\ (x-b)\ (x-c) \dots (x-k)\ (x-l),$$

for all values of x; and that, $-p =$ sum of the roots, $q =$ sum of the products of every two of them, ... $\mp t =$ sum of the products of every $(n-1)$ of them, and $\pm u =$ continued produced of all the roots, the upper or under signs being taken according as n is even or odd.

TWENTY-THREE SHORT LECTURES ON THE CHURCH CATECHISM. BY ARCHDEACON BERENS. Pp. 214. (London: *F. & J. Rivington*, 1850.)

PROGRESSIVE EXERCISES ON THE CHURCH CATECHISM. BY THE REV. H. HOPWOOD, M.A., RECTOR OF BOTHAL, NORTHUMBERLAND, LATE DIOCESAN INSPECTOR OF SCHOOLS FOR THE NATIONAL SOCIETY. PART IV. EXPOSITORY EXERCISES. Pp. 133. (London: *J. H. Parker*, 1850.)

THE long-established custom of public catechising during Lent, suggests the present time as a fitting one to notice the above works, which have both recently appeared. The author of the lectures is already well known by a variety of publications of a practical character, well adapted to parochial purposes. The lectures are short, plain, and scriptural; and in no part open to the imputation of anything like extreme views upon doctrinal points. In preparing them the writer has availed himself of the admirable exposition of Bishop Nicholson, and of the labours of others; amongst which he mentions the lectures of Archdeacon Daubeny, which, he observes, seem to have come but little before the public. The lectures are designed and adapted to be used in a country village, and we would especially recommend for this purpose the six upon the creed, and the ten upon the commandments.

The other work, entitled "Expository Exercises," forms part iv. of "Progressive Exercises," of which the three former parts have already been noticed in the *Journal*. The "Expository Exercises" are in fact a filling up of the "Analytical Exercises" contained in part iii., and are so contrived, that the catechist, by a previous careful perusal of them, may, when engaged with his class, bring their contents to his recollection by a cursory reference to the short "Analytical Exercises." The information given on each portion of the catechism in these "Expository Exercises" is very full, and put in a clear and distinct form. The statements of doctrine are definite, and supported by Scripture, and by quotations from the Prayer Book, and from the works of some of our best divines.

A SCHOOL DICTIONARY OF THE LATIN LANGUAGE. BY DR. J. H. KALTSCHMIDT. I. LATIN-ENGLISH. (Edinburgh: *W. & R. Chambers*, 1850.)

THIS Dictionary is part of Chambers' Educational Course. We are told in the preface, that "the feature which distinguishes the present Dictionary from all others" is, that it "gives, as far as possible, the etymology of every word, not only by tracing it to its Latin or Greek root, but to roots or kindred forms of words occurring in the cognate languages of the great Indo-Germanic family."

With this information from the editor, we opened the body of the work, and in turning over a few of the leaves we came upon the following specimens of Dr. Kaltschmidt's etymological system:—

Miror (akin to merus, spero, vereor).
Mendax (mentior).
Mentior (mendax).
Mora, f. (moror).
Moror, 1. (mora).
Mœreo (akin to murrio, burrio, fremo).
Moles (akin to bolus).
Mollis (akin to pellis, vellus).
Moveo (akin to paveo and vivo).
Mugio (akin to voco).
Mulier (akin to filia).
Mordeo (akin to mependa).
Metus (akin to vito).
Murmur (murrio, burrio, fremo).
Amo (Sanscrit am, to see; akin to opto).
Anus, i. m. (akin to animus, from Sanscrit an, to breathe, to blow) the fundament, &c.
Alea (akin to ala).
Ansa (akin to ensis).
Adulor (* ulo, ulor = ululo, I howl).
Cogito (Sanscrit chank; Icelandic huga, to think).
Colo (κλάω, I break).
Ico (Sanscrit agh, to beat, hurt; ach, to penetrate),

Jaceo (Sanscrit gah, to be dense, firm, *κειμαι*).
Jacio (German jagen ; akin to ago).
Fœdus, eris (*ποδοω*, to bind).
Fortis (akin to fartus).
Fides and fidis (akin to vestis), a thread, a string, &c.
Obscurus (perhaps akin to creperus).
Oppidum (ops, do).
Palam (akin to palpebra and *βλέπω*).
Pampinus (akin to vinum).
Potis, pote (allied to -pte, -pse, -met, akin to fidus).
Prope (akin to privus).
Sobrius (so, bria).
Ebrius (bria, vat).
Tribuo (perhaps from Sanscrit trip, to satiate).
Usquam (us; akin to ad, quam).
Usque (us ; akin to ad, que).
Verbum (from *ἔπος* ; akin to sermo, from oro, *ἐρῶ*, *εἴρω*).
Voco (vox).
Vox (voco).

It is difficult to know which most to admire—1. The circular mode of derivation by which the nouns *mendax*, *mora*, and *vox* flow from the verbs *mentior*, *moror*, and *voco*, and at the same time these verbs flow from the nouns ; 2. The missing of evident etymologies, as the relation of *cogito* to *agito*, which is as certain as that of *cogo* to *ago ;* and the close connection, amounting to almost identity, of *ico*, *jacio*, and *jaceo*, as well as of *anus* and *annus*, or *annulus ;* 3. The introduction of such non-existing or doubtful words, as *murrio*, *burrio*, and the preposition *us ;* or, 4. The utter disregard of connection in respect of meaning, which runs through the whole series.

A CATECHISM ON THE HOLY SCRIPTURES. BY THE REV. E. S. PHIPPS. Pp. 98. (*Masters.*)

QUESTIONS ON THE OLD AND NEW TESTAMENTS ; WITH REFERENCES AND ANSWERS. BY THE REV. J. HARRIS. Pp. 120. (*Hamilton, Adams & Co.*)

These little works, though both in the form of questions and answers upon the Holy Scriptures, differ in their arrangement and subject-matter.

The first, as expressly stated in the title, is for the use of Church Schools. Accordingly, it begins with a direct reference to baptism and the Church. Its design is to convey, in an easy and interesting manner, a general knowledge, chiefly historical, of the Holy Scriptures, to the minds of school children. The answer immediately follows each question, and nearly to every answer is added a reference to the chapter and verse from which the answer may be derived. The author's plan in his own schools is to furnish each child with a Bible containing the Apocrypha, and a Prayer Book ; and then to ask one of the questions and give the reference, requiring the child to look it out, and from it to supply an answer. This, he observes, creates interest, prevents the work from becoming merely a mechanical rote, and, while it affords work which each child *can* do, yet requires of him some little mental exertion to accomplish it. The epitome contained in this Catechism is of course brief, but it affords a useful, continuous, and general narrative, the recurrence to which will, as the author justly remarks, prevent a tendency to diffuse and desultory statements. The questions are arranged in divisions upon each book of the Bible in succession.

The other work is, as expressed in the title page, "for the use of schools and biblical students." It consists of two parts. The first contains 600 questions upon the Old and New Testaments, and may be had separately. The second part forms a key to the questions in the first, pointing out the passages containing the required answers, and giving information on those questions which could not be answered from the text of Scripture itself. Most of the questions are upon the historical books, and are generally arranged in chronological order. There are also chronological tables of the kings of Israel and Judah, and of the principal events in Scripture history.

Both works may be used with profit by the same person. The first is more adapted to a regular course of Scripture reading; but the second will be found very serviceable as a test of the knowledge gathered in reading the Bible, and as a means of fixing in the memory those particulars which a systematic perusal of Scripture may have failed to impress upon it.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

Ques. 90.—*Proposed by Mr. J. Brown.*

A solid lost $1\frac{3}{4}$ oz. when weighed in water, and $1\frac{1}{2}$ oz. when weighed in spirits; required the specific gravity of the spirits.

Answered by Mr. F. R. Crampton, Mr. Sothern, Mr. Barnacle, and Mr. Gillingham.

Weight of water equal in bulk to the solid $= \frac{7}{4}$ oz.

Weight of spirits „ „ „ $= \frac{3}{2}$ oz.

$\therefore$ Specific gravity of the spirits $= \frac{3}{2} + \frac{7}{4} = \cdot 85714$.

Ques. 91.—*Proposed by Tom Tomkins.*

Required the same as in Question 88 of the last number of the Journal, when the fluid is mercury in the place of water.

Answered by Mr. Righton, Mr. Royds, Prismoid, and Mr. Yoel.

Let x = the height of the mercury in the glass, then we find, after the method adopted in the solution to question 88,

$$x^2 - 42x = -36$$

$$\therefore \quad x = \cdot 8754 \text{ inches.}$$

Ques. 92.—*Proposed by the same.*

A right cone is cut out of an upright cylinder; it is required to find the work requisite to overturn the remaining portion of the solid on the edge of its base.

Answered by Mr. Herbert, Mr. Crampton, Mr. Royds, and Mr. Hall.

Suppose the cone and cylinder to have the same base and perpendicular. Let r = the radius of the base, h = the perpendicular height, w = the weight of the whole cylinder, and x = the distance of the centre of gravity of the remaining portion of the solid from the base; then we have by the principle of the equality of moments.

$$\frac{h}{2} \times w = \frac{h}{4} \times \frac{w}{3} + x \times \frac{2w}{3},$$

$$\therefore x = \tfrac{5}{8} h;$$

$\therefore$ Distance centre of gravity from the edge of the base

$$= \sqrt{r^2 + (\tfrac{5}{8}h)^2} = \tfrac{1}{8} \sqrt{64 r^2 + 25 h^2};$$

$\therefore$ Vertical space through which the centre of gravity is moved in overturning the

$$\text{body} = \tfrac{1}{8} \sqrt{64 r^2 + 25 h^2} - \tfrac{5}{8} h.$$

Hence we have (see Tate's Exercises on Mechanics, p. 24)

$$\text{Work} = \frac{w}{12} \left(\sqrt{64 r^2 + 25 h^2} - 5h \right).$$

LIST OF MATHEMATICAL ANSWERS.

J. Herbert, Woolton, ans. 90, 91, 92; J. Royds, Belfield, ans. 90, 91, 92; W. Righton, ans. 90, 91, 92; F. R. Crampton, St. John's Wood, ans. 90, 91, 92; G. Hall, Audley Grammar School, ans 90, 91, 92; Prismoid, Tewkesbury, ans. 90, 91, 92; G. Barnacle, Empingham, ans. 90, 91; W. H. Yoel, Shelbourne, ans. 90, 91; T. Sothern, Burtonwood, ans. 90, 91; H. Heppinstall, Manningham, ans. 90; A. M. Gillingham, ans. 90, 91; Sam Dyer, Wanstead, ans. 90. 91; W. H. Y., ans. 90, 91; G. Morris, Gosport, ans. 90, 91; W. Davison, Sunderland, ans. 90, 91; H. Ford, Norham, ans. 90, 91; J. Salter, Durham, ans. 90, 91; Danos, Bishopwearmouth, ans. 92; E. R., Sunderland, ans. 90, 91.

NEW QUESTIONS,

To be answered in our Number for April, 1851.

Ques. 93.—*Proposed by Mr. Sam Dyer.*

If a clock gains 24 minutes per day, at what time will the hands be together between 3 and 4 o'clock, supposing them to start together at 12.

Ques. 94.—*Proposed by Prismoid, Tewkesbury.*

A person walks in a straight line the distance of 100 yards; he then turns to the left at an angle of 30°, and walks 100 yards; he then turns to the right at an angle of 60°, and walks 100 yards, as before; it is required to find his distance from the point of starting.

QUES. 95.—*Proposed by Mr. Crampton.*

What is the length of a pendulum, which oscillates thrice as often in a minute as it has inches in its length?

CHESTER COLLEGE.

(*Extracted from a Letter published in the Chester Courant.*)

THE College stands on a rising ground, just out of the town, on the road leading to Parkgate; and the valley, through which the River Dee pursues its course to the sea, rich in verdure and foliage, spreads before you; bounded by the noble range of hills, I might almost say mountains, which separate the Vale of Clwyd from that of the Dee, and form the north-eastern frontier of the Principality. Not to dwell, however, on externals, we entered the building, at the western end, which it seems forms the residence of the Principal, and inquired for him. We were told that twelve o'clock had struck, and that he had just left the class-room, and that he was probably somewhere among the workshops. It seemed odd to hear of workshops in a College; but your friend who knew all the ways of the house, desired us to follow him; and having passed through a small piece of kitchen garden, where two young men in square caps, such as are worn in Cambridge, were digging very neatly some borders into which plants were to be set, we went up a passage through which we entered a yard, in one corner of which was a blacksmith's forge in full activity. The bellows were working merrily; quick and heavy blows were falling on a piece of red hot iron; and bright sparks were flying in every direction from the anvil; while two men were striking, and half a dozen lads were busy, either in working the bellows or in subjecting pieces of metal to the fire. "Mr. Principal," said your friend, "I have brought you some visitors, who wish to see the College, but do not let us disturb you, if you are busy." One of the workmen stopped, and briefly saying that he was quite at our service, he threw off the leather apron which he had been wearing, put the sledge hammer into the hands of a stout youth who had been standing by, told him in a word how he was to go on, and then presented himself to us as the Rev. A. Rigg, late of Christ College, Cambridge, and Principal of the College at Chester. I could not but ask him what he was about; as I certainly wished to know what it was that had turned a learned ecclesiastic into a blacksmith, and whether it was fancy or amusement that led to this unusual employment. He told me with great good nature, that they were employed in making turning lathes for sale, and that they forged the bar iron into the pieces from which the screws and other parts of the machine were made; and that he had merely taken the hammer in order to show the others the way in which the iron was to be welded. He pointed to a number of tools, such as chisels, &c. which were hanging upon the walls: and said, "We make all these things here; and you will soon see how many we need and the use to which we turn them." * * * We followed him down a short flight of steps, which led into a large subterraneous room, like a well-lighted cellar; and it seemed as if we had got into the workshop of the world. Fifteen or twenty young men, with rather a larger number of boys, were all at work; but all so busy, so merry, and so deeply interested in what they were about, that they took no notice of us, and went on hammering, sawing, turning, and grinding, as if their livelihood depended on what they did. Gradually, as I recovered my senses and was able to look round, I found one group occupied with a lithographic press, striking off circulars from a stone. I found a long table surrounded by others who were executing with extraordinary correctness some Gothic mouldings in oak. A circular saw, which was set in motion by a large wheel, was cutting deal plank into slips with as much rapidity as if it had been paper; and in the farther end there were several turning lathes at work, and articles of use were being thrown off in quick succession. Half a dozen other crafts were, I believe, going on in other corners, and in a laboratory near the door I found three little fellows occupied in colouring glass, and two others were finishing some excellent models of the steam-engine and power loom. The scene was in truth most extraordinary: and I must own the universal animation and goodness which pervaded the party was as wonderful as their activity. All seemed at work, but without collision; the boys seemed to have their own department as well as the men, and not one stepped beyond his line, nor did more than he was wished to do, or able to do. * * * We followed him to another workshop, where the boys were making those card-board models for linear drawing, which are now recommended by the best masters. They were working on geometrical rules, and were evidently doing their work both accurately and neatly, and two others were hard at work binding a book. In an adjoining room there were half a dozen more employed in a chemical experiment; in the laboratory two others were melting some brass ornaments out of which they were to construct a paper weight; and in the midst of them, a tall gentlemanlike person, with something more of an academical look than the Rev. Principal, was preparing for a lecture on Agricultural Chemistry by mixing in separate saucers the earths of which he was to give an analysis in the evening. We were introduced to him as the Vice-Principal, and he explained briefly the nature of the lecture for which he was arranging the materials, and in which his young companions seemed to take considerable interest by the attention they paid to what he said.

Passing through these rooms we followed the Principal into another workshop, where a small steam-engine of singularly neat construction was in full operation. It was moving six or eight lathes, and iron and brass were being turned into screws, or holes were being drilled through plates of the same metals, with a rapidity which astonished us; and our astonishment was no doubt increased when I heard from the friend who introduced and accompanied us, that the steam-engine had been constructed by the students in their leisure hours, and that the whole apparatus which I saw was literally home-made, from the engine itself down to the tools with which the men were working.

We went on, and saw the two large class-rooms, and admired the excellent system of ventilation which secured to each a continual influx of warm but pure air; and then on the two upper stories of the house we saw the dormitories of the men who are training as masters for schools; and that for the boys in the commercial school, which is above. In these dormitories each individual has his separate cell, a cell just large enough to hold an iron bedstead, a wash-hand stand, and chest of drawers; all lighted up by gas at the hour of retiring, and all lights extinguished at the same minute. We saw the separate apartment called the hospital, which happily has hardly been ever used, but which contains a good sitting-room, together with four sleeping-rooms, differing only from the others in this, that each room is on a larger scale, and has a small fire-place. We descended to the kitchen, a lofty, light, and spacious room, where an excellent dinner for about 90 hungry men and boys was being cooked by a fire which was less than that which I frequently see in your drawing-room; and we also saw the tables prepared in the hall, for the reception of the whole body. Beyond the hall, we proceeded by a short passage to the College chapel; and here alone can anything like ornament be traced. Throughout, the building is as simple as it possibly can be, though the mass is imposing, and the outline forms a group of no ordinary beauty. The chapel however is elegant. It was elegant in its original design; but the interior is now receiving continued increase of embellishment, through the labour of the young men, who are filling up the panels with mouldings on the best and purest form, and who beyond this are endeavouring to purchase the embellishment of painted windows by the sale of works done in their hours of recreation. When that decoration shall be added, few mansions of our nobility, few Colleges in either University, will possess a building so chaste in design, and so appropriate in its style as the one of which I am writing.

While we were occupied in admiring this very striking scene, the dinner bell had summoned the men and boys from their workshops, and after a very hasty toilette, had collected them in the class-room. We heard the hymn chanted, which is used before meals, and as they slowly filed through the rooms and took their places at the table, the harmony of sound was sustained. The music indeed then ceased, and the clatter of knives and forks testified to the appetite with which the meal was welcomed, after the exertions, bodily as well as mental, included in the morning's employments. My companions were loud in expressing their admiration of what they had seen; but I own that on my mind there was another feeling still more predominant. I had long been thinking and inquiring on the subject of education. I had long been wishing to find a place where a really useful and practical education might be got. I had considered the plans of Pestalozzi, of Fellenberg; and I had been prepared to run some risk and much expense in order to obtain what I wanted, and here to my surprise I seemed to find it, combined with the strictest moral discipline and the soundest religious training, and offered at a price infinitely lower than I had been prepared to expect. The charge was stated as being £30 for a boy below 12 years, and £35 for a boy above, without any of the various *et ceteras* which swell out the accounts at schools of a different description.

* * * * * * *

The boys in the commercial school are mixed with the young men who are being educated as schoolmasters, only at the hours of play and at their meals. The studies are conducted separately and in different rooms. The boys in the commercial school learn all that is taught at common schools, such as arithmetic, geography, English grammar, and learn it fully and thoroughly. They may also learn Latin, French, and German, if their parents choose, and they are all grounded in the theory of music and linear drawing. I own, however, that the knowledge they may gain in the workshops is, in my opinion, more valuable than any other; for I know no other place where it can be gained; and I see the purposes of usefulness to which it may be turned. Nor can I forget that this knowledge, which may be so useful, is being gained while other boys are only learning how to play at cricket or wasting their time in idleness and mischief.

Intelligence.

EDUCATIONAL INSTITUTE OF SCOTLAND.—*Examination of Candidates.* The Board of Examiners intimate that the Annual Examination will take place on Wednesday, Thursday, and Friday, the 3rd, 4th, and 5th days of September next.

SUBJECTS OF EXAMINATION.

I.—*Degree of Junior Licentiate.*

1. *Classics.*—Cæsar's Gallic War—third and fourth books; Ovid's Metamorphoses—story of Phaëton, and contest of Ajax and Ulysses; Virgil's Æneid—second and third books; grammatical exercises; ancient geography of Gaul, Italy, and Britain; military antiquities, and political institutions of the Romans, from *Adam.*

2. *Arithmetic.* — Reduction, with reasons for the processes; proportion, simple and compound; practice; common and decimal fractions; interest, and duodecimals.

3. *Geometry.*—The first and third books of Euclid.

4. *English.* — Correct reading; grammar, including derivation; leading events, with their dates in the histories of England and Scotland; geography—the four quarters of the globe, with England, Scotland, Ireland, and Palestine; general acquaintance with the explanatory mode of teaching.

5. *French.* — The elements of French grammar; translation and analysis of such works as Charles XII. or Fleury's History of France.

6. *Writing.*—Specimens of penmanship, and writing in presence of the Examiners; book-keeping by single entry—viz., by cash-book, day-book, and ledger.

7. *The Rudiments of Natural Science,*—including the laws of matter and motion, and the mechanical powers.

8. *Paideutics.*—The best method of arranging classes; teaching a class in presence of the Examiners; acquaintance with "H. Dunn's Principles of Teaching."

II.—*Degree of Senior Licentiate.*

1. *Classics.* — Virgil's Æneid — book ninth; Livy—book second; Tacitus—Life of Agricola; Horace—first book of the Odes with the metres; Xenophon's Anabasis—books first and second; Homer's Illiad — book eighteenth; Greek Testament—St. John's Gospel; the principles of Latin and Greek syntax; translation of a passage of English into Latin, and of a few easy sentences of English into Greek.—Ancient geography, antiquities, &c.; geographical outline of Germany, Spain, Britain, and Gaul, with *detailed* account of Italy and Greece; political institutions, religious worship, dress, and domestic manners of the Romans, from *Adam*; elements of Grecian antiquities, with political institutions of Athens and Sparta, as contained in Arnold's "Hand-book of Grecian Antiquities," or in the common text-books of Grecian history; general outline of ancient chronology and history, as contained in White's, Tytler's, or any similar text-book of universal history.

2. *Mathematics.* — *In Arithmetic*—Common and decimal fractions; simple, compound and distributive proportion; exchange of money; profit and loss accounts; compound interest; discount of bills, and extraction of the square and cube roots. *In Algebra*—The elementary rules; fractions; involution and evolution; the binomial theorem; simple equations; problems that can be solved by simple equations; quadratic equations; progressions, and the use of logarithms. *In Geometry*—First six books of Euclid, with simple deductions; plane trigonometry, with its applications; the mensuration of plane surfaces, and of the simpler solids.

3. *English.* — Knowledge of the principles of elocution; grammar; composition; rhetorical analysis of a passage from the second book of Milton's Paradise Lost (consult La-

tham's "Abridged Grammar," or "Logic of Grammar," or "Whately's Rhetoric," or Campbell's "Philosophy of Rhetoric"); White's or Tytler's Elements of Modern History; mathematical and physical geography; sketch of the principal divisions of the four quarters of the globe, with *detailed* geography of North America and Palestine.

4. *Foreign Languages. In French*—Translation and analysis of passages from Telemaque, and the Tragedies of Racine; translation into French of English sentences, and correct pronunciation; derivation of words. *In German.*—Etymology and syntax; translation of Schiller's Wilhelm Tell, and of easy sentences from English into German.—*In Italian*—Grammar with translation from "Le Mie Prigioni" of Silvio Pellico, or first four cantos of Tasso's "Jerusalem;" translation of easy sentences into Italian.

5. *Writing.*—Specimens of penmanship, and writing in presence of the Examiners; explanations of the method of book-keeping by double entry. *In Drawing*—Landscape and principles of perspective.

6. *Science.*—Principles of natural philosophy, by the Scottish School Book Association, No. VII.;—or Comstock's Natural Philosophy;—or Mosley's, or any other approved books on the subject.—Elements of astronomy.

7. *Paideutics.*—A knowledge of Willm's Method of Teaching; teaching a class in presence of the Examiners.

Candidates may select such of the above subjects as they please, one or more; and the "Diplomas shall be definite; specifying the branches in which members have been examined, and stating the degree of proficiency manifested by each."

The examinations, except those in English reading, pronunciation of Foreign languages, teaching a class, &c., will be conducted in presence of a certain number of the Board of Examiners, and by means of printed papers, which will be put into the hands of candidates at the commencement of each examination; and the papers, when finished, will be returned to the Examiners. No text book, book of reference, history, grammar, dictionary, note-book, or assistance of any kind will be allowed, and all the candidates shall be placed on an equal footing in this respect. A specified time will be allowed for each paper.

The examinations will take place at Aberdeen, in the Grammar School; Ayr, in the Academy; Dumfries, in the Academy; Edinburgh, in the High School; Glasgow, in the High School; Inverness, in the Academy; Perth, in the Public Seminaries; St. Andrews, in the Madras College; Stirling, in the English School; and at Inverness, Inverary, Jedburgh, Portree, Kirkwall, and Lerwick, in the Burgh or Parochial Schools. Candidates will be allowed to select the place which is most convenient for themselves.

In order to facilitate the arrangements, it is earnestly requested that all who propose to offer themselves for examination shall give intimation of their intention to the Secretary of the Board of Examiners, on or before the 25th day of July next: and they are desired to present themselves at the various places above specified on either or all of the following days, viz., 3d, 4th, and 5th of September, at nine o'clock. The *viva voce* examinations will be conducted at convenient intervals in the course of these three days. Candidates will receive all requisite information by applying to the Secretary of the Board of Examiners, or to the Local Secretaries at the different place of examination.

Directions as to the way in which the examinations may be most satisfactorily conducted will be drawn up by the Committee, and transmitted in due time to the Local Secretaries. Examination papers will also be prepared, and sent to the proper quarter immediately before the days of examination.

Local secretaries, and all teachers into whose hands this circular may come, are requested by the Committee to use their utmost diligence in making its contents known as extensively as possible among their professional brethren, especial among those who are not members of the Institute, as admission and degrees can now be obtained only by examination.

The Board of Examiners desire it to be distinctly understood, both by the public and their brethren, that, in carrying out the important objects for which the Institute was established, it will be their constant endeavour to raise the standard of qualification on the part of the licentiates.

JAMES GLOAG, LL.D.,
Sec. to the Board of Examiners.
EDINBURGH, 11, DUNCAN STREET,
December 28th, 1850.

OXFORD UNIVERSITY COMMISSION.—The following series of questions have been forwarded by the Commission to the public Examiners in the University of Oxford :—

Oxford University Commission,
Downing Street, Feb. 25.

"Sir,—Her Majesty's Commissioners for the University of Oxford will feel much obliged if you will communicate to them whatever information may, in your judgment, enable them to give a faithful representation of the state of the public examinations and general studies of the University. Your attention, as having filled the office of public Examiner, is especially directed to the following points :—

"1. Do you consider the present system of public examinations well adapted to stimulate students generally to exert themselves to the best of their respective powers? If not, do you think it fails most with regard to those of moderate or those of good abilities?

"2. How far do you think the recent statute likely to remove any defects that may exist in either case? Should you wish to see any further extension of studies, any further alterations in the examinations, or any change in the mode of classification?

"3. What were the general subjects for the ordinary examination during the period of your examinership? In what subjects was failure most common? What was the average proportion of candidates who were rejected or who voluntarily withdrew?

"4. Can you specify the books taken up by candidates for classical honours, and the number of candidates by whom each book was taken up? Can you make any other statistical returns which appear to you to be important as illustrating the state of study in the University?

"5. What are the general subjects of the mathematical examinations? What degree of attention is paid to geometrical knowledge, or to expertness in the use of analytical method?

How do you account for the comparative neglect of mathematics? Do you think that the studies introduced by the recent statute will be as much neglected, and for like reasons?

"6. Is the present mode of appointing examiners such as you would recommend? Do you consider their payment sufficient? Do you think that examiners for University scholarships should receive payment?

"7. Do you think that the subjects of instruction now pursued in in the University are such as will attract any other classes to the University than those that resort to it at present? or do you think that the present studies could be advantageously modified with a view to that object?

"I have the honour to be,
"Your obedient humble servant,
"A. P. STANLEY, Secretary."

To Correspondents.

A Sheffield correspondent is informed that we do unreservedly approve of all the books named in the list he refers to. We do not however consider that all therein named are requisite, nor does the list contain all that a master ought to have: it is given to select from or to add to, as circumstances may direct.

ON LATIN ETYMOLOGY.

No. VIII.

In the present paper it is proposed to trace from a single root a large number of its derivatives. The verb *vert-*, "turn," seems itself to be a secondary formation from a simple and obsolete form *ver*, just as the Greek *τυπτ-* has for its radical syllable *τυπ* alone. This added *τ* is perhaps only an abbreviation of what appears as an entire syllable in the secondary verbs, *ειργ-αθ-ω*, *εικ-αθ-ω*. But there are other words besides *vert-* which seem to point to a root *ver*. First, *ver-g-*,* as seen in *con-verg-*, "turn all to the same point," *diverg-*, "turn different ways," &c., has in the *g* a suffix, if we may trust the analogy of *spar-g-*, "scatter," *mer-g-*, "dip," and *ter-g-*, "wipe," compared severally with *σπερ* of *σπειρω*, *σπερμα*; *mari-*, French, *mer*, English, *meer;* and *ter-* "rub." Again the substantive *ver-u*, "a spit," is clearly referable to a primitive verb signifying "turn," the very use of a spit depending upon such capability. A fourth, and if possible still more decisive case, is the neuter substantive *ver-men*, which in the plural *vermina* denotes "writhings with pain" in Lucretius, and whence is formed a verb *verminari*, "to writhe with pain," a word used by Pomponius of a woman in labour. These four words then, viz., the two verbs *ver-t-*, *ver-g-*, and the two substantives *ver-u* and *ver-men*, justify us in the assumption of a common parent, "*ver*." The same root is seen in nearly its simplest form in our English verbs *veer* and *wear* (a ship). The French also have *vir-er* "to turn," and Germans *wirr-en* "to twist." Secondary formations from this verb abound in our language, as *whir-l*, *war-p*, *wr-ithe*, *wr-eath*, *wr-ench*, *wr-est*, *wr-ing*, *wr-iggle*, *wr-ap*. Moreover, the sound *ver*, for a Roman seems to have pronounced his *v* like our *w*, and our own *whir* of *whir-l* well represent the noise made in a rapid revolution or turning.

The word *ver-men*, which has already been spoken of as used in the sense of "writhing with pain," would seem also to have signified "a worm," seeing that the verb *vermin-a-*, which must be derived from it, has in Seneca the meaning of "breed worms:" *Fulmine icta intra paucos dies verminant.* This view is further confirmed by the fact that Pliny uses *vermin-oso-* repeatedly for "swarming with maggots," and *vermina-tion-* for "breeding worms or maggots." Indeed, our own word *vermin* seems to be derived from the Latin word *vermen*, so used. Hence it would seem that *vermi-* (nom. *vermis*) is simply a corruption of the word *vermen*, *vermin-is*. The disappearance of the final *n* and the change of gender is parallel to what has befallen the Latin words signifying blood. Thus the older Latin writers have a neuter noun, *sanguen*. But *sanguis sanguinis* has become masculine. This noun should have had for its original nominative, *sanguins;* or, if the *n* be dropped, the final syllable should still have been long; and long it is in Lucr. IV. 1043; Virg. Æn. X. 487; Ov. Fast. VI. 448; Tib. I. 7, 72; Lucan. II. 338; Val. Fl. III. 234;

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* We have said *verg-* as seen in *converg-*, &c., because there is another verb of precisely thesame form, which signifies "pour," whence *inverg-*, "pour upon," *Virg.*

Sil. X. 23. We quote these references from Forcellini, to show that the doctrine of the syllable owing its length to the licence called Cæsura, is not tenable. In fact, when Virgil shortens the nominative in *Vos o quibus integer ævi Sanguis ait*, &c., he is using the nominative of a noun, *sangui-*, from which noun, and not from *sanguin-*, came *sangui-sug-a*, "a leech," *sangui-culo-*, "a black pudding or little cake made of blood," and the adj. nom. *ex-sanguis*, ac. *ex-sanguem*.

To return to our nouns *vermen* and *vermi-s*, "a worm," it is hardly necessary to observe that a derivation from a verb which signfies "to turn" is well suited for a creature whose twisting habit is so marked. Of course our own *worm* and Germ. *wurm* are related to the Latin words *vermen* and *vermi-s*; it would be wrong to say *derived* from them, as the English language is scarcely ever, the German never, indebted to the classical languages for words of this familiar character. That the word is common to the two languages arises from their being sisters in the great Indo-European family. It is precisely in the same way that the word *name*, found alike in English and German, corresponds to the Latin *nomen*, with the same loss of the final *n*,* and yet is not derived from it.

A spit (*veru*) requires to have one extremity pointed for spitting the meat. From it is formed an adjective *veruto-* (nom. *verutus*), just as from *cornu-* and *versu-* come *cornuto-*, *versuto-*; and the adjective *veruto-*, "armed with an iron point like that of a spit," might well be used in the neuter as a substantive, nom. *verutum*, "a spear or missile with a spit-like point."

The vowel *e* is often changed to the kindred vowel *a*. Hence the adj. *vāro-*, "with crooked legs, bandy," is, in all probability, connected with the root *ver*. There are two ways by which this adjective may be connected with the verb, either by the addition of the simple suffix *o*, as *fido-* (n. *fidus*) with the verb *fid-ere-*, *parco-* with the verb *parcere*; or by means of the suffix *ero-*, which is so often added to a verb for the formation of an adjective. (See No. 43, p. 255.) A form *vĕr-ĕro-* would almost of necessity be abbreviated to something like *vēro-* or *vāro-*, just as *stĭp-ĭ-pendio-* is compressed to *stīpendio-*, *quinquini* to *quini*, *salu-tut-* (from *salvo-*) to *salūt-*, &c. The other adjective, *var-io-*, formed from our assumed verb *ver*, like *exim-io-*, "select," from the verb *exim-*, "take out," seems also akin in sense, as the ideas of turning and differing have much resemblance. Nor is it detrimental to this view that the practical usage of this word connects it more particularly with variety of colour.

The substantive *var-ic* (nom. *varix*), which is used in the plural to denote "varicose veins," seems indisputably a progeny of our verb, as varicose veins are characterized by their convolutions. The suffix *ic* seems to contain a short vowel, if we may judge from the derived adj. *vărĭcoso-*, and so differs but little from that seen in *vertex*, *vert-ic-is*, a word which is of course formed directly from the verb *vert-*. Hence Nonius seems somewhat inaccurate, when he deduces *vărix* directly from the adj. *vāro-*.

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* That the German *name* once possessed a final *n* in the nominative is laid down by the authorities in that language.

It is almost superfluous to say that *vert-e-bra,* "one of the bones of the spinal column," is from *vert-*, "turn," seeing that the power of turning the head round is due to these bones, especially those of the cervical portion. The suffix *bra* is seen added to verbs in *illec-e-bra, ten-e-bra, lat-e-bra, ter-e-bra;* and the preference of a connecting ĕ to the vowel ĭ, which is more usually employed for this office, is due to the influence of the pair of consonants which follow, just as in *gen-e-trix* (contrasted with *gen-i-tor*), *princeps* (contrasted with *princip-em*), *acceptus* (contrasted with *accipit*).

In *Vertumnus,* "the god of change," the only strange point is, that we have the suffix of a Greek participle, *vert-omenos.* But the same is seen in the noun *alumnus,* for *al-omenos;* and that the suffix is really indigenous in the Latin language is proved by the use of the same in the second persons plural of passive verbs, as *vertimini* for *vertimini* (i. e. *vertomenoi*) *estis*, a usage corresponding pretty closely with that of *τετυμμενοι εισι* in the Greek Grammar.

As regards *vertex* and *vortex* no one has ever felt any difficulty, whether we look to the eddying whirlpool which contracts as it descends, or to an ascending spiral which tends towards a point.

We will next consider those forms which, instead of an *r*, exhibit an *l*. The convertibility of these liquids is familiar to every student of etymology; and is explained by the fact, that the natural order of the liquids is *r*, *l*, *n*, *m*, so that *r* and *l* are immediate neighbours. We advisedly use the word *natural*, because it will be found on trial that such is their position in the mouth, the liquid *r* being formed at the back of the mouth, *l* against the palate, *n* near the teeth, and *m* at the lips. This order should always be kept in view, wherever the interchange of the liquids is under consideration. That the Greeks possess a prolific root *Fελ*, in the sense of turning, is well known. Familiar derivatives of this sort are *ἑλισσω, ἑλιξ, ἑλιτροχος, ειλω, ειλυω*, all of which have the digamma in Homer. The Latin language commonly requires a concurrent change of the vowel into *o*, whenever an *l* takes the place of the final *r*. But this can occasion no just surprise, as *vorto*, *vortex*, *advorsus*, &c., in the older writers are preferred to *verto*, *vertex*, *adversus*. Indeed, it may be laid down as a general rule that Latin words which commence with the letters *ve*, may take *vo* as a variety. Thus we have *velle* and *volo*, *vester* and *voster*, *vetare* and *votare*, *εμεω* and *vomo*, *επω* (whence *ειπον*) and *voco*. And the same variation occurs in other languages. Thus to the Latin *verbum* and *vermis* correspond our *word* and *worm*, in which an *o* is written and an *e* sounded. A German writes *antwort*, where we have *answer;* and conversely *schwert*, where we prefer *sword*.

We have therefore no hesitation in claiming as derivatives from our root the verb *vol-v-* (*volvo*), "roll." The final *v* in this verb is a remnant of a suffix corresponding to the *ow* which is so often appended to secondary verbs in our own tongue. In some of our preceding papers attention has been called to this suffix, especially in the English verbs *know* and *bellow*, formed from the all but obsolete verbs *ken* and *bell*. Exactly in the same way the Greek has two kindred verbs, *ειλ-ω*, and *ειλυ-ω*. Indeed we also happen to possess the exact equivalent in form of the Latin *volv-* in our verb *wall-ow*, which a Roman would have translated by *volutari*; and, again, this verb *wallow* is identical with the German *walg-en*, "to roll," for it is a well-known law between the two languages that where we have a suffix *ow*, the Germans present a *g*, witness our *follow*, *borrow*, *sorrow*, *morrow*, *gallows*, corresponding to the German *folg-en*, *borg-en*, *sorge*, *morgen*, *galgen*.

The Latin also exhibits a *g* as a substitute for the *v* in several derivatives from *volv-*. This was to be expected; first, because the Italians have *volgere*, "to turn;" and, secondly, because the letter *v* or *u* of the Latin has a general tendency to interchange with gutturals. Examples are *conniveo*, *foveo*, *niv-is*, compared with *connixi*, *focus*, *nix* and *ninguit*. Now the neuter substantive *volg-us* has a suffix which appears to attach itself to verbs alone. Thus Greek scholars commonly admit that the appearance of a neuter noun in *ος* is a guarantee for the existence of a verb (obsolete or not) whence such substantive is formed. By referring *volg-us* to the verb *volv-ere* we get a highly satisfactory explanation of its meaning. The process of stirring a liquid &c., so as thoroughly to mix the ingredients is an act of circular motion, and the idea of promiscuous is precisely what the substantive *volgus* expresses. Thus, in Terence, *quod volgus servorum solet*, "what the general mass of slaves taken promiscuously are wont to do." So again *volgare* is "to make promiscuous," a sense which will meet all its uses, and especially that which Forcellini defines by *prostituere*, *permiscere* (observe this word), and supports by a quotation from Livy, IV. 2, "Quam enim aliam vim connubia *promiscua* habere, nisi ut ferarum prope ritu *vulgentur* concubitus plebis patrumque?" and a little below he gives from the same writer: "Sunt qui Laurentiam *vulgato* corpore lupam inter pastores vocatam putent." In the same sense Ovid and Suetonius have *vulgares puellæ*; Terence, *victum volgo quærere*, and the legal writers *vulgo concepti*.

In the English *wallow* and the German *walgen*, an *a* supersedes the legitimate vowel of the root. To these we may add the German *walz-en*, "to roll," a word now familiarized with us. Whence the *z* of *walzen* one does not clearly see, but we know it is not radical, because to the Latin *sal* corresponds a German *salz*, and this again is with us *salt*. Hence too we may safely assume that our *welt-er*, in its first syllable, corresponds to *walz* of the German *walz-en*. This verb *welter* is so confined to the one usage of weltering in blood, that one does not at first readily assent to the idea of its signifying nothing but to roll. But the Germans use their verb *walzen* precisely in the same way, as *walzen sich in seinem Blute*.

The Latin root also has at times a vowel *a*, as we have already seen in *varo-* and *vario*.—We might also have pointed attention to our adverbs in *wards*, for these of course represent those of the Latin language which end in *versus*. So also an *a* is seen in *valvae*, which, as our lexicons truly tell us, are so called *quia in aperiendo volvuntur*. This word *valvae* is probably an adjective, not formed from *volv-ere*, however tempting it may seem, but rather from a simple form *val* or *vol* with the common adjectival suffix *uo-*. This suffix is seen in *assid-uo-*, *perspic-uo-* *caed-uo*, *pasc-uo-*, &c. When for the *u* a *v* happens to be written, we are apt at times not to recognize it. Thus it is not always perceived that *protervo-* is no more than *proter-uo-*, and so an adjective from the verb *preter-ere*; and again *arva*, "ploughed fields," is only a neuter plural of an adjective *ar-uo-* from *ara-re*, corresponding precisely to *pascua* from *pasc-ere*. *Valvolo-*, however, "the pod of a bean," that is, its *involucrum*, seems to come directly from *volv-ere*. We must also include in our family the adjective *valgo-*, "distorted." The *g* in this word again corresponds to *ow* of our English tongue, for this suffix *ow* is seen in adjectives as well as verbs and substantives. Examples are *yellow*, *sallow*, *hollow*. The power is probably diminutival as it certainly is in substantives which so end (see No. 3, p. 255). Thus *varo-* and *valgo-* will clearly be related words in which the chief idea is that of distortion. It was probably a mere accident that the first came to denote one who is bandy legged with the feet turned *inward*, and the other knock-kneed with the feet *outward*. Those who hold the difference to be inherent will find it difficult to explain how the adjective *var-ico-* in Ovid, and the verb *varicare* or *varicari* in Quintilian, are applied to people who stand with their feet wide apart.

The adjective *varo-*, "crooked," is probably identical with the German *quer*, "cross, oblique," which we also possess with some modification of meaning in our *queer*. Thus we are brought to the consideration of many Latin words which in the essential syllable have an initial guttural with an *r* for the next consonant, as *cur-vo-*, *circo-*, *chor-o-*, *gyr-o-*, in all of which we have a bend, and in most a complete bend or circle. Our own tongue claims kin with the same for the first part of the words, *curl*, *crook*, *crooked*, *crumpled*, and *cross*.

Again, as the initial digamma is apt altogether to disappear, we may expect derivatives commencing with a vowel. Thus *er-uca*, "a caterpillar," so remarkable for its curling propensity, belongs to this family; and we say this with the more certainty because this word is also written *ur-ica*, where the digamma is supplanted by its near relative the vowel *u*. Moreover, not merely is an initial *v* or *w* apt to disappear, but it often takes its vowel with it, as has been shown at length in No. 49, p. 2. It was there seen that *rota* and *rotundo-* are only modifications of *vorta* and *vortundo-*, precisely as *roll* is of our *whirl*.* And thus again the English substantive *ring*, as well as the verb *wring*, is probably derived from the English root *whirr*. The subject is far from exhausted, but our limited space compels us to stop.

CLAUDIUS.

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* Intermediate between the verbs *whirl* and *roll* stands *hurl*, which in Scotland, we are told, is used only in those cases where the thing hurled has a rolling motion, as, for example, a stone rolled violently along the ground.

A LETTER ON THE BIBLE, TO A SCHOOLMASTER.

BY A LAYMAN.

(*Continued from p.* 84.)

THE *mind* then must be cultivated for the sake of the heart; let us inquire how, and why best by the Bible. When we polish shells, stones, or other substances, we merely remove, by some suitable process, their rough outside; the new surface is as much a part of the real thing as the old one was, only it is smoother, and so reflects more light. Now this may illustrate the process which takes place when the facts relating to man or nature, or the thoughts and feelings of men about both, are recorded in books. They are the real facts, thoughts, or feelings, but they are polished—they reflect more light than before. Hence, when presented in this form to the eye of the mind, they are at once more pleasing and more distinctly intelligible; and the mind is excited to greater desire for knowledge, and finds a corresponding gratification. Out of this desire and gratification, when habitual and duly regulated, springs intellectual culture. Books, as I have said, are the means of carrying it on, and they are effectual means in proportion to the truth that is really in them; but no truth ought to stop short in the mind, but should through the mind penetrate to the heart, and quicken that also. The importance of maintaining this connection between light and life, has been felt in all ages, not barbarous nor refined into mere selfishness; and consequently the history, and philosophy (or hidden principles and meaning) of the growth of the institutions and relationships by which the heart is trained, as also the histories of men living in these, and the records of their thoughts and feelings (under which head I, of course, include poetry) have ever been the most interesting, as they are the most ennobling studies of the mind.

Such histories and records we call the literature of a country. Observe the expression, for it is a remarkable one. When we speak of the literature of England, we are not merely using a compendious phrase for "all the books written in the English language;" we imply that there is a real though hidden relation of each of these books to all the rest, and that all are the productions of the one national mind of England. As we say of the writings of Dr. Johnson, from his school-exercises before he was fifteen, up to his 'Lives of the Poets' written sixty years afterwards, that they are the works of one man, and the fruits of one mind in all stages of its growth from boyhood to mature age—just so we recognise the fact of a personality in the nation, and a unity in the national mind, whether we trace the gradual and vigorous development of this mind in the writings of our Chaucers, Shakspeares, Hookers, and Miltons; its symptoms of unhealthy action in our Drydens, Humes, and Paleys; or the promise and earnest of its return to new life in our Johnsons, Burkes, Coleridges, and Wordsworths. This is the meaning of a literature: you will not question it if you meditate upon the facts themselves; for it has never been denied or doubted, except by men who have habituated themselves to see nothing and to believe nothing which is not first adequately expressed in words. But how did we discover that we have a national mind and literature, and not merely a great collection of books? I believe it is not too much to reply, that we discovered it through our having a Bible,—that 'one Book wherein for several thousands of years the spirit of man has found light, and nourishment, and an interpreting response to whatever is deepest in him; wherein still, to this day, for the eye that will look well, the mystery of existence reflects itself, if not resolved, yet revealed, and prophetically emblemed; if not to the satisfying of the outward sense, yet to the opening of the inward sense, which is the far grander result.

It pleased God to choose the people of the Jews as an example for all ages, that in them he might show, once for all, how he would have society regulated, and what were the only perfectly wise principles on which to regulate it. The Jews were a race of real flesh and blood men, like the Greeks or Romans; but there was this difference, that while these and all other heathen nations were left to "seek the Lord if haply they might feel after Him and find Him," He did actually and formally reveal himself to the Jews as Him in whom they lived, and moved, and had their being. God himself organized their domestic, political, and ecclesiastical institutions; and by the mouth of inspired lawgivers, kings, and prophets, gave them direct and methodical information as to the meaning and purpose of these institutions, and the right manner of their development to meet the internal progress, and the ever-varying circumstances, of each successive age. The heathen poets and philosophers desired earnestly to find the source and explain the workings of life and light, of righteousness, goodness, and truth; but were fain to satisfy their longings with their own profound speculations or beautiful imaginations: to the Jew alone did the "Word of the Lord" come to reply to all these deep questionings of the human mind, that he might know certainly—in fact and not merely in idea—what the answers were, and might in due season be the channel of communicating them to the rest of the world. This Revelation, or unveiling of God's design and will in the moral and spiritual education of man was gradual, and so connected with the successive events of Jewish history as that these should always be the practical illustrations of that revelation; and thus, while the Bible remains really and properly one—the one divine Book, it does in its human character exactly correspond with what we have seen to be meant by 'the literature' of our own or any other nation. If the Jews were not the less real men because the Lord God manifested himself to them, and even in the fulness of time came to dwell among them; so neither are their books the less real because the writers of them spoke as they were moved by the Holy Ghost: and on the other hand, just as we realize the high privileges to which God has called us and all mankind, by seeing how He took the Jews into covenant and fellowship with Himself; so do we understand the worth of our own or any other literature in discerning the divine characteristics of the Jewish Scriptures. During the two thousand years that God was speaking to the race of Abraham, "at sundry times and in divers manners," by the prophets, the apostles, and His Son, there must have been a national mind in that race which was capable of being addressed, or the Scriptures extending over so long a period could never have been fit vehicles of a divine Revelation, continuous, and ever growing fuller and fuller. Thus, as I said before, our having a Bible enables us to recognise the fact of a real unity in the mind and the literature of our own, and of every other nation. In this, though not in this only, we see fulfilled the promise to Abraham, 'In thy seed shall all the nations of the earth be blessed.'

I have endeavoured to show you that the education of an Englishman is carried on by means of institutions; that the operation of these is not effectual unless they are understood, and that therefore books become necessary; that the proper worth of books can only be known by the help of the Bible; and that the Bible is the divinely provided key of that very knowledge for which all other books are valuable. Our Greek and Latin books—nay, even our English ones—have never been able to do more than help us to educate our gentlemen and our men of letters, while it is, and ever has been, by means of the Bible, that we make *men*. A liberal, as well as able member of parliament, in a speech against the Conservative scheme of education for the manufacturing towns, of which he was one of the chief opponents, argued that the study of the Bible ought always to be made an essential part of a national education, because it was an historical fact that it had always been the book most read at every period in which the spirit of liberty was most stirring in the people, and the chief means by which that spirit had been fostered. And the observation will hold equally true if extended from the times of excitement to those of peace, and from the region of politics to that of every other kind of intellectual activity. The quiet scenes of the "Odyssey" do not soothe and elevate the heart of even the scholar (if he have a heart, and not merely a head for metres and verbal criticism), as do the stories of Abraham, Isaac, and Jacob; and, while the former have little interest for any man who has not had something of a scholar's training, the latter are, and will be, heard with delight by the peasant and the child, in every land or age that is, or shall be,—so instantly do they appeal to, and awaken, the deepest sympathies of our common kind. The influence of the great names of Hector or Scipio, of Socrates or Cato, fades into a dream, when you contrast the subjects of its small and shadowy sphere with the countless men and women who have acted—nay, what is more, who have suffered—in the strength which they felt when they thought on Joshua or David, on Moses or Solomon, on Isaiah or Daniel, and familiarized their minds with the national songs, and histories, and sage aphorisms, in which the mighty deeds, and the deep wisdom, or the humble and holy prayers and praises of these are recorded. Milton, who certainly did not overrate the Hebrew from any lack of knowledge of Greek and Latin, (in the preface to his second book on the "Reasons of Church Government,") after speaking of "those magnific odes wherein Pindarus and Callimachus are in most things worthy," adds,—"but those frequent songs throughout the law and the prophets beyond all these, not in their divine argument alone, but in the very critical art of composition, may be easily made to appear, over all the kinds of lyric poetry, to be incomparable." And, in the "Paradise Regained," he maintains the same principle, with a more general application of it, where the Saviour says:—

"Or, if I would delight my private hours
With music, or with poem, where so soon
As in our native language can I find
That solace? All our law and story strew'd
With hymns, our psalms with artful terms inscrib'd,
Our Hebrew songs and harps, in Babylon
That pleas'd so well our victors' ears, declare
That rather Greece from us these arts deriv'd;
Ill imitated, while they loudest sing
The vices of their deities, and their own
In fable, hymn, or song, so personating
Their gods ridiculous, and themselves past shame.
Remove their swelling epithets, thick laid
As varnish on a harlot's cheek, the rest,
Thin sown with aught of profit or delight,
Will far be found unworthy to compare
With Sion's songs, to all true tastes excelling,
Where God is prais'd aright, and godlike men,
The holiest of holies, and his saints;
Such are from God inspir'd, not such from thee,
Unless where moral virtue is express'd
By light of nature not in all quite lost.
Their orators thou then extoll'st, as those
The top of eloquence; statists indeed,
And lovers of their country, as may seem;
But herein to our prophets far beneath,
As men divinely taught, and better teaching
The solid rules of civil government
In their majestic, unaffected style,
Than all the oratory of Greece and Rome.
In them is plainest taught, and easiest learnt,
What makes a nation happy, and keeps it so,
What ruins kingdoms, and lays cities flat;
These only with our law best form a king."

I think I shall now have satisfied (as far as I can) your demand for an explanation of my original position about the Bible, when I have added the following sentences from a writer I have already quoted. Speaking of the inspired writers, he says, "Their particular rules and prescripts flow directly and visibly from universal principles as from a fountain: they flow from principles and ideas that are not so properly said to be confirmed by reason as to be reason itself. . . . From the very nature of these principles, as taught in the Bible, they are understood in exact proportion as they are believed and felt. . . . This then is the prerogative of the Bible; this is the privilege of its believing students; with them the principle of knowledge is likewise a spring and principle of action. And as it is the only certain knowledge, so are the actions that flow from it the only ones on which a secure reliance can be placed. The understanding may suggest motives, may avail itself of motives, and make judicious conjectures respecting the probable consequences of actions. But the knowledge taught in the Scriptures produces the motives, involves the consequences; and its highest *formula* is still—*as sure as God liveth*, so will it be unto thee!" I am, &c.,

E. D. W.

PRACTICAL HINTS FOR THE SCHOOLROOM.

VEGETABLE PRODUCTIONS.

The object of this paper is to furnish in a compact form some useful materials either for gallery lessons, or for general catechetical instruction on the vegetable productions in common use. As they are professedly but hints, they will require to be moulded into shape for working by the teacher, who may also, from time to time, enlarge this stock of ideas by his own private reading. That children should know something of the vegetable world is surely reasonable enough. It is a portion of that marvellous book of Nature from which millions have learned and may still learn much of their duty. It forms so important a part in the economy of nature, is so essential to the very existence of the animal creation, and contributes in so many ways to the health, happiness, and comfort—to the instruction and education of man; that he must be wantonly negligent in his duty who fails to give it some little study and attention. How often does the Creator send us to the vegetable, as well as to the animal world to learn wisdom. He not only supplies us with "grass for the cattle and green herb for the service of men;—with wine to gladden the heart, and oil to cheer the countenance," but affords us also raiment and shelter—coals and kindling—furniture and medicine, and a variety of luxuries and enjoyments. These are most interesting as well as most instructive subjects to discuss in a class—and, if duly considered beforehand by the teacher, they will alleviate much of the drudgery and labour of school-keeping. The grand object in teaching is to develope the mind—to teach children to think, and gradually to express or describe their thoughts in a simple, intelligible manner. This is composition, and of all subjects it is the most difficult and unpopular branch of school work. But it need not be, and would not be so, if children were not taken out of their depth. If some easy subject were given them upon which to exercise their understanding from the natural world—from homely arts and habits—from the animal and vegetable creation—they would think and write too, readily enough. The following may serve as specimens of the principles advocated. They were written on a black board as a first-class exercise, and answered their end admirably.

(1.) In what respect do the following trees and their fruits differ from each other—the gooseberry, raspberry, strawberry, blackberry, mulberry, and elderberry? (This will teach them to compare and classify. Then you may tell them something about—the cranberry, barberry, dewberry, bilberry, and whortleberry.)

(2.) Describe the seeds of the apple, walnut, chesnut, oak, plumb, grape, orange, and laburnum; and how they are protected from the rain and cold. (By pulps, shells, skins, husks, rinds, peel, and pods.)

(3.) Write down the names of all the British forest trees, fruit trees, and ornamental trees of the lawn and garden. (The forest trees are the oak, ash, elm, maple, lime, beech, poplar, sycamore, birch, mountain ash, Scotch fir, willow; which most of the children will remember, but it is a question whether they will spell them correctly.)

(4.) Try to find out in the course of the week what is said in the Old Testament about the two trees in Eden—the trees which made a king—the burning bush—the boat of bulrushes—the rod that budded—the juniper tree—

Absalom's oak—Jonah's gourd; what was made with Cedar wood, with Gopher wood, with Shittim wood; and, as another lesson, what is said in the New Testament about the lilies of the field—the vine and branches—the mustard-seed—the barren fig tree—the tares and wheat—the sycamore tree. (And while they are interested in the subject, tell them something of the oaks of Dodona and the old dryads and hamadryads—of the oak groves of the Druids and their sacred misletoe—of the lettuce-like woad and the case of wicker work—of the sacred lily, fleur de lis—the English rose—Irish shamrock—Scotch thistle—the first Plantagenet (Planta-genista)—the wars of the roses, and the sheltering oak of King Charles.)

This is useful knowledge, and children take pleasure in learning it. While they are storing their memories with these interesting facts, they may be learning something of natural history, and will improve in reading, writing, spelling and composition at the same time.

The subjoined facts are hints for teachers on the vegetable productions in ordinary use.

GRAIN.—*Wheat*—staff of life—an ancient plant—cultivated in Egypt and Syria 3000 years ago—(see the History of Joseph and Ruth)—generally plucked up by hand—ground at home between portable stones.

Straw—there used, as hay here—formerly in brick making—now for bonnets, hats, and thatching.

Starch—from the refuse of wheat—first well soaked in water—dried in sun—fermented—put into bags—beaten well—husks then separated and the flour at the bottom of the tub—this sediment dried is *starch*.

Barley in Palestine sown in autumn, reaped in spring—contrary in England. *Pearl and Scotch barley* is barley prepared—husks removed by a mill. *Malt* made from barley—first steeped until swollen and soft—thrown into a heap and fermented—then it begins to grow, dried over a kiln—thirty million bushels made yearly.

Oats—the most hardy grain known—oat cakes—oatmeal—groats from ground oats.

GARDEN PRODUCT.—*Potatoes*—extensively cultivated—found in Iceland, Lapland, as well as in Africa and the East—brought here from Virginia (America, 1586, by Sir Walter Raleigh)—first cultivated by Gerrard, a botanist—sugar extracted from them—also flour and starch—a dye from the leaves and tops.

Onions and leeks—very old plants—eaten by Israel in Egypt—(Numb. xi.)—yield abundantly—20,000 seeds from one root—anciently worshipped by the Egyptians—now, they say, grow in Paradise.

Beans came originally from Egypt—Windsor or broad beans brought here in the reign of William III.

Peas first planted in England in the reign of Henry VIII.

Cabbage called kale in Saxon times—modern cabbage—brought from Holland by Sir Anthony Ashley—cauliflower—brocoli—Brussels sprouts—savoys, different species of cabbage—two former brought from Italy in the eighteenth century.

Turnips—supposed to have been brought here by the Romans.

Carrots—thoroughly English—but brought to perfection by some Flemish peasants in reign of Elizabeth.

FOREIGN PRODUCT.—*Rice*—cultivated early—in plantations—in South Carolina—(United States)—China and India—Java, called the granary of the East from its immense supply—grows as far north as Piedmont—(Europe)—sown in March—in rows—in frenches—thrice flooded during its growth—ripens in water—each grain on a little stalk like oats—has an awn like barley—cut with a knife—tied in bundles—threshed with a flail—husks removed by a mill—hardened by beating—packed—exported. Two crops a year in India—from 30 to 60 bushels per acre.

Sugar—from a cane—like the reeds on our marshes—with a bush of leaves at the top—but a hard skin—sweet pith—knotty stalk like wheat—about an inch in girth—cut with a knife—bruised at a mill to squeeze out the juice—collected—boiled—purified—casked—exported.

Sugar is extracted from other vegetables—as beet-root—mangels—parsnips.

Tea grows on hedges and on mountain sides—in China, Japan, India—the size of a rose bush—about six feet high—flowers like the wild rose—soil strong but gravelly—south aspect best—leaves long, narrow, indented—evergreen—seeds size of a pea—planted on little hills—not many grow. Leaves gathered when young—dried in sun or by charcoal fire—on metal plates—when dried they curl up—are packed in chests and exported—green and black from the same tree, but gathered at different periods—green gathered without stalks—not dried so much as black—dried on copper—not so wholesome. Tea brought to Europe 1610, by Dutch—sold in London 1666, at 30s. a pound.

Coffee.—Native of Arabia Felix—grows also in West Indies—height from eight to fifty feet—an evergreen—trained in artificial terraces and on hill sides—flowers white like jessamine—leaves like bay-tree—grow in pairs—fruit like the cherry—first green, then red—each berry contains two seeds in little cells or husks—gathered in May—shaken on a cloth—laid in the sun to dry up the pulp—husks broken by rolling (Arabs eat the husks), then it is winnowed—afterwards roasted till brown—then ground and boiled. Brought to France by Thevenot—first used in London 1652.

SPICES.—*Ginger*, a root—plant like a reed—grows in East and West Indies—chiefly Jamaica—spreads wide but not deep—when first gathered is eaten by the Indians, sometimes peeled, candied, preserved. If for sale as a spice, it is scraped and dried in the sun.

Pepper—from the same islands—plant like the vine—called pepper vine—entwines like ivy—berries, first green then black, grows in bunches like garden currants—each corn on a separate stalk—half a dozen pounds on a tree—black pepper gathered green—dried by sun until shrivelled, then rubbed by hand—white pepper hangs till ripe, then dried and rubbed—black, stripped of its outer coat becomes white—best from Malabar—King of Banda sells it at 2½*d.* per lb.

Allspice, or pimento, the berry of a kind of myrtle—grows in West Indies—in plantations—chiefly in Jamaica—hence called Jamaica pepper—emits a delicious odour—flowers white—berries in bunches and numerous—gathered green—dried in sun, till brown and seeds shake—then packed and exported.

Cinnamon, inner bark of a beautiful tree, like the laurel—leaves flame-coloured—grows in Ceylon and Malabar—extensive plantations—young branches produce best cinnamon—outer bark first scraped off—then inner bark slit up with a knife and carefully removed—dried in the sun—curls up into quills or pipes. Cassia made from the buds—oil from the leaves and chips.

Cloves—native of the Moluccas—flower buds of a kind of laurel—size of a pea—grow wild in the Moluccas and West Indies—great height and noble in appearance—scent the air around—flowers abundant—in clusters—beaten or shaken before they expand or open fully—dried—contain much oil.

Nutmegs and Mace—native soil island of Banda—both from the same tree—like the English cherry-tree in size—it grows also in the East and West Indies—always loaded with blossom and fruit—leaf deep green, and branches spreading. The fruit has three coverings; first, cream-coloured like a peach; second, a scarlet membrane, which is the *mace;* the third, a hard shell, containing the nutmegs. This is dried in the sun, then over a fire till the kernels rattle, afterwards broken and taken out.

FRUITS.—*Oranges*, chiefly from St. Michael's (one of the Azores), Malta, Spain, and Portugal—tree evergreen and long-lived—will flourish 400 years—flowers profuse—in February or March—fruit ripens in spring—gathered before ripe for exportation—very productive—29,000 once gathered from one tree—the trees present a beautiful appearance—old leaves deep green—light tints of the new—yellow fruit—and white flowers all seen together. Seville oranges from Seville in Spain—very bitter but wholesome. Marmalade and wine made from them.

Lemons, from South Europe—peel candied and preserved.

Figs, from Turkey, eaten as food in the East—very nourishing.

Raisins, dried grapes from Valencia and Malaga (Spain).

Prunes, common plums from south of France.

Olives—emblems of peace—noticed in the Bible—from Greece, Italy, and France—like a plum—violet colour—gathered before ripe—preserved in brine—ground and pressed for the oil—used in salads and wine, &c.

Currants, small grapes from the Ionian Isles (West of Greece)—formerly from Corinth—hence the name currants or Corinths (grapes of Corinth)—prepared without trouble—picked—dried—casked—exported.

WINES, from the juice of the grape. Port from Portugal. Sherry from Xeres in Spain. Champagne, Burgundy, and Claret from France. Vines are grape trees—vineyard the place where they grow—vintage the time for gathering them—when gathered the grapes are put into a wine press, and are trodden or pressed—the juice is collected—left to ferment awhile—then casked—the first pressing is the best.

Brandy is sometimes distilled from wine, sometimes from grapes.

Gin distilled from wheat and other grain, mixed with juniper berries.

CLOTHING.—*Cotton* from a plant and tree—grows in warm countries in America, Asia, and Africa—common cotton from East Indies—plant three feet high—when young sweet scented—flower pale yellow—fruit, a pod size of a walnut—ripens in September—bursts and discloses a downy fibrous substance, which is the cotton—the seeds and husks are cleared away by hand or a machine—it is then bagged, sewn up, and exported. When it reaches England it is again cleansed, beaten, carded, roved, wound on reels, and woven into cloth. Some cotton is sown and reaped like corn, and yields two crops a year.

Linen, from flax—a slender plant with hollow and fibrous rind—grows about three feet high—is sown in March—blossoms in June—pulled in August—common in Britain and Ireland—seeds from Russia and Holland—when pulled first cleansed from seeds, &c.—tied in bundles—soaked until the rind separates from the stalk—then dried, pressed, cleaned—combed into smooth fibres and sent to spinster. Best seeds are kept—the rest is linseed—oil is pressed from it.

Humboldt mentions flowers which serve children for hats on the river Magdalena.

OTHER VALUABLE USES OF VEGETABLES.

Grass, used in Holland and other low countries as an embankment to keep out the sea.

Tar, from roots of fir-trees—put into a hole with charcoal—covered over with turf—burned and distilled.

Soda, from burnt sea-weeds and other useless vegetables.

Kelp, used in soap making—from ashes of sea-weeds—great quantities found on Scotch coasts.

Potash and Pearlash, from weeds and old trees—burnt—mixed with boiling water, leaves, and salt—which dried, is potash—and burnt, becomes pearlash.

Camphor, juice of a tree—laurel kind—grows in China and Ceylon.

Saffron, from the yellow stamens of a kind of crocus.

Cork, bark of a kind of oak tree—grows in Spain, Portugal, and France—stripped when about fifteen years old, and will yield a coat for eight years.

Paper, so-called from *Papyrus*—a reed which grew in the Nile (Egypt)—on which the ancients wrote—it had several coatings or layers—taken off carefully—each besmeared with Nile water and a paste—dried and so used.

Mahogany, a noble tree—best, from West Indies, called Spanish mahogany. Honduras from the American lowlands—cut in August—in logs—land carriage expensive—floated down the rivers to the sea and shipped.

Rosewood, so-called from its smell—beautiful tree—wood dark brown—hard and compact—from South America.

India Rubber, or caoutchouc—the juice of a tree which grows in India may be dissolved in ether, or in the oil of linseed and turpentine.

Indigo, a colour extracted from the anil or indigo tree—grows in hot climates.

Opium, a juice extracted from a white poppy—abundant in Turkey and the East Indies.

Peruvian Bark, the bark of a tree called cinchona or quinquina—grows in Peru.

Nutgalls, similar to oak balls—made by an insect eating into the bark of trees—used in dying—best from Aleppo.

Ipecacuanha, root of a tree—found in North America—particularly in Brazil.

ON IMPROVING THE CONDITION OF OUR YOUTHS AMONG THE POOR.

This subject has recently been considered, with much earnestness and care, by the Rev. E. Monro of Harrow Weald, in a pamphlet entitled "Agricultural Colleges, and their Working." With his wonted honesty and faithfulness, he has looked the evil for which he proposes a remedy fully in the face, and has unsparingly described its nature and extent. "The chief hindrance which clergymen in every part of the kingdom find to the effective working of their parishes, is," he truly states, "the ill condition of boys from fifteen to twenty—from the time they leave school to the time they settle in life." "Whatever has been the routine of school-life, and whatever the amount of personal work in the school-room, the clergyman will find that some of his most docile and obedient boys will, within a short time after leaving school, become independent, assume a manner which has a strong tinge of impertinence, shrink from the memory of the restraints of school-life and those who were connected with it, with something like a vindictive feeling; the attendance at church becomes unfrequent, and more to meet companions or display dress than aught else, and will be marked by irreverence and indifference. The result is, that the clergyman feels that, in the most important and critical moment of life, he is likely to drop a link in his continued intercourse which will snap irrevocably the whole chain of his connection with the individuals of a large portion of his people." "Yet these youths," he observes, "are the children of God; most of them fresh from confirmation, and with the energy of good and holy feeling lying slumbering and latent in the heart."

The causes of the evil here pointed out are then stated at some length; but they may be briefly enumerated as being:—1. The very ineffective discipline in operation in the domestic life of the poor. 2. The narrow limits of the poor man's cottage. 3. That employers no longer allow farm-servants to lodge and board in their houses, as formerly. 4. The lack of games and amusements. 5. The tendency and nature of the period of life from fourteen to twenty. 6. The ill effect of clergymen keeping youths at a distance from them, instead of sympathising with them and throwing themselves into their interests.

The remedy suggested for the evil thus occasioned, is to provide for the youths a home, and discipline in that home; thus to throw them into close connection with good influence, excite legitimate interests in life, and elevate, by creating self-respect, their whole condition. This remedy he designates "collegiate life;"—an expression usually employed with reference to a class of society so different from that with which Mr. Monro would connect it, that, it may be feared, the mere application of the term may deter some from giving to the remedy proposed that serious attention which it most justly deserves. The same may be said of the title of the pamphlet; and we must confess that we have on this account thrown our notice of it into the form of a paper upon the subject of which it treats, instead of a review of the work itself. But the propriety of the term is sufficiently vindicated by Mr. Monro, who truly remarks that "the whole usage of society has been, at a certain age, to substitute a sphere for youth in place of the home of their birth. In our own rank of life, the university or collegiate life in some form is the substitute to many for home at this time. Why should not the same form be adopted for the mass of our youth among the poor? I firmly believe the benefits would be countless which would arise from it, and the facility of carrying it out far greater than most imagine. I speak from experience, having lately instituted a plan of this kind, and I draw my remarks from its working."

In illustration of his plan, he supposes an effort made, as a beginning, for the accommodation of fifteen youths, by hiring an old farmhouse, or two or three cottages together, with four or six acres of ground attached. One room is to be fitted up as a hall—with tables, benches, book-shelves, and fire-place; another room for prayer: the bed-rooms to be divided by wooden partitions into small chambers of 10ft. by 5ft. The management of the house may be entrusted to some man who is willing to throw himself into the working of such an institution; and who, if taken from the farming or labouring orders, would be more anxious to be wholly guided by the clergyman. The boys are to be from the age of 14 to 19; taking care, if possible, that at first the elder ones are well-conducted youths from the village, anxious to do right themselves and to lead others right. They should be taken from each larger family, where already the narrow limits of the old home are beginning to be painfully felt, and to whom such a change would be a striking advantage. The furniture may be of the plainest and most inexpensive kind: an iron bedstead—with a box, table, and chair—will be enough for each little compartment. A small library should be placed on the shelves of the hall. The table may be supplied in the hall with their meals daily, at which those of the youths who worked in the neighbourhood might assemble; while those whose work lay at some distance would only do this on Sunday: on the week-day they must take their food with them. The table might be supplied at dinner with good meat daily, and vegetables; breakfast and supper might consist of bread, butter, and tea. The average expense weekly, for fifteen youths, with good management and going to market for provisions, would be about 4*l.* 10*s.* And, if each youth paid 5*s.* 6*d.* weekly, the whole might be all but self-supporting. This would leave sufficient for the youths to clothe themselves with the remainder of their wages; the institution itself providing them with every necessary, short of clothing and washing. When out of work they might cultivate the ground annexed to the house, and the produce would return the rent; and the youths unable to pay their weekly quota would receive their living in return for their labour. The rules of the institution might be at first as simple and as few as possible, requiring attendance at prayers morning and evening, and return from work at some fixed hour; and attendance at church. Sobriety and honesty should be considered requisite for retaining membership, and silence in bed-rooms after a certain hour. Calculations to prove the practicability of the plan, as to expense, are given; and some other particulars which our limits do not permit us to enumerate. It is obvious, that if the plan will answer for fifteen, its difficulties will lessen with increasing numbers when once it has been started, and the expenses will lessen in proportion with the numerical increase.

The mode in which this plan will operate on the youths of the parish is then shown. 1. It will enable the clergyman to keep up his connection with them during the years from fourteen to nineteen, now generally spent away from his influence. The teaching of the school-room will be transferred to the hall, the lessons which suited the child changed to those which suit the boy, and not a link dropped in religious instruction and the formation of habits. The youth may thus progress in knowledge and good habits until manhood, instead of sinking into an ignorance at sixteen which makes a return to the elementary teaching of five years' old necessary at twenty, and enables the youngest child in the school which he left to put him to shame in religious knowledge; and yet he himself perhaps left that school at its head—an instructor of others; and when he presents himself at sixteen for confirmation, he comes with awkward, rough, unmannerly habits—ignorant, presumptuous, and self-willed. "No chain," it is truly remarked, "can be the same which has been once severed, however well mended; and no habit of mind can have the same force, if dropped and re-formed, as it would have had if its continuous existence had been never broken through." 2. The habit of order and discipline, in the common and daily routine of life, will elevate the tone and ameliorate the condition of the poor. 3. A further advantage, will be the acquisition of self-respect gained by the youths themselves. We always see that those youths among the poor who are least disciplined are least respected by others, and least respect themselves. 4. Another advantage will be the opportunity of bringing games into use. Music might be made of great avail, for which there is a natural taste in nearly every one, and specially in youth. They will take to it far more quickly than would be imagined, and a small expense would be sufficient to provide a boy with what would amuse many an evening hour. A band would soon form among them; and the hall might be a scene not only of lawful enjoyment for the youths themselves, but of entertainment for others in the village. In many cases, the amusements may be made to defray their own expenses. They may take the form of science or mechanism—painting, carpentering, carving. The mere fact of an employment being of a somewhat graver kind will not deprive it of interest to a boy: there is an emulation after usefulness, which will induce youths to go through much trouble in the pursuit of what will reflect credit and win the esteem of those they respect. 5. Another benefit will be, a more elevated view of agriculture altogether, and a more religious view of the husbandman's life. To the former of these ends, it is shown that the cultivation of the ground attached to the institution may be made conducive, by the work being done in a more regular and scientific manner than is usually the case. 6. Farmers and employers will feel the benefit of procuring workmen whose characters will have been formed, and whose conduct will be trusted. 7. The youths will be placed in a community in which they will find companions of their own, who will be stable and settled friends. 8. They will be provided with a home to which they will become attached, and which will induce them to remain in a single condition until they are far more prepared to enter domestic life than is now usually the case.

Having thus pointed out the evils arising from the present ill condition of our youths amongst the poor, the probable causes of such a state of things, a plan for the remedy, and the advantages of that plan, Mr. Monro proceeds to mention some important points of management, and to answer objections. For these we must refer our readers to his pamphlet, which on many accounts well deserves a careful perusal by all who are interested in improving the condition of the rising generation of their poorer brethren. Of his concluding remarks we must not omit the following:—"We no longer occupy the ground that even our fathers stood on; everything is daily altering and shifting; and nothing more than the positions and relations of society: we are seeing vast revolutions in our own day, and in every land the fabric of society is experiencing a shock. The world must belong to the multitude, not the few; and with the increase of millions must be the increase of machinery drawing together hearts and sympathies." "None of the remedies generally tried go towards the removal of the great difficulty—the severance of the orders of society, and the alienation of the ranks of rich and poor. That remains the same; and, till that is healed, the evils of our condition flow from a corrupted fountain—distrust and want of confidence will only continue to perpetuate themselves, and the reiterated complaint of the poor against the oppression and injustice of their superiors will continually evoke new forms of self-protection from the rich. Nothing will heal society but teaching men that the principles of love and confidence are the only safe and happy ones; and that, while evils and inequality must exist in the government of God on earth, the difficulties they produce can only be soothed by mutual forbearance and sympathy, and only truly borne aright by the prospect of the life of perfect peace hereafter, for which the sorrows of time are the necessary probation."

GENERAL EXAMINATION OF TRAINING SCHOOLS.

CHRISTMAS, 1850.

MALES.

MUSIC.

Section I.—1. State your reasons for considering music a necessary branch of elementary education.

Section II.—1. From what sounds of any given major scale is its relative minor formed?

2. Represent a series of sounds, commencing from the lowest usually sung by men, and extending to the highest usually sung by women.

3. Draw up a table of the signatures for simple and compound common time.

Section III.—1. Explain the terms tonic, dominant, sub-dominant.

2. Write from memory a short passage of music, and explain how it could be transposed into any other key.

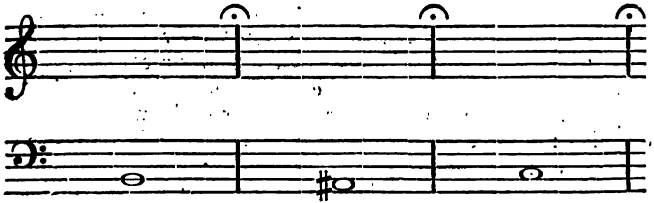
3. Write down the notes of an elementary lesson on harmony.

Section IV.—1. What is meant by the terms simple counterpoint, florid counterpoint.

2. How may a modulation be made from any major chord to its relative minor?

3. What is a discord? Explain its preparation and resolution.

Section V.—Write major and minor chords upon a stave, in three positions, to the following exercise—



SCRIPTURAL KNOWLEDGE.

Section I.—1. Describe the conflict of Israel with Amalek at Rephidim, and the rebellion of Korah, Dathan, and Abiram.

2. "Forty years long was I grieved with this generation and said: It is a people that do err in their hearts, for they have not known my ways." Psa. xcv. 10. Illustrate this passage from the Pentateuch.

3. Relate particularly what is recorded in Scripture of one of the following persons:—Gideon, Elisha, Daniel, and show what practical instruction adapted to children may be drawn from it.

Section II.—1. Relate the circumstances recorded of the calls of the Apostles severally.

2. Relate in their proper order the events which occurred between our Lord's resurrection and his ascension.

3. What were the most remarkable of our Lord's discourses, and on what occasions were they severally delivered?

SECTION III.—1. What events are associated historically with the following places, Dan, Beersheba, Hebron, Shiloh, Bethel, Tekoah, Ashdod?

2. Where was Philistia? To which of its cities was the Ark taken, and under what circumstances restored? Where were the rivers Kishon and Arnon, and the brooks Besor and Kedron, and what events are associated historically with them?

3. What were the provinces of Asia Minor in the time of St. Paul? Where are the following places situated, and what events are associated historically with them: Lystra, Ephesus, Laodicea, Thyatira, Troas?

SECTION IV.—1. What is meant by a type, and what by an antitype? What events recorded in the Old Testament are declared to be typical in the New?

2. What is the testimony of the prophets to the pre-existence of the Messiah, his divinity, and his office as our High Priest?

3. "And with great power gave the Apostles witness of the resurrection of the Lord Jesus." Acts iv. 33. Give examples of this, and assign reasons for the evidence of the resurrection being specially insisted upon by the Apostles.

SECTION V.—Explain fully one of the following passages:—

1. "The Scribes and Pharisees sit in Moses' seat: all therefore, whatsoever they bid you observe, that observe and do: but do not ye after their works." Matt. xxii. 2, 3.

2. "Neither by the blood of goats and calves, but by his own blood he entered in once into the holy place, having obtained eternal redemption for us." Hebrews ix. 12.

3. "After the same manner also he took the cup, when he had supped, saying, This is the New Testament in my blood: this do, as oft as ye drink it, in remembrance of me."

SECTION VI.—State in such simple language as is adapted to the understanding of children, the practical instruction which may be drawn from the Parable of the Tares, or the Parable of the Ten Virgins.

LATIN, GREEK, AND FRENCH.

I. Translate one of the following passages into English, parsing the words printed in italics, and giving the grammar and the rules:—

1. "His de rebus Cæsar certior factus, et *infirmitatem* Gallorum *veritus*, quod sunt in consiliis *capiendis* mobiles, et novis plerumque *rebus student*, *nihil* committendum existimavit. Est autem hoc Gallicæ *consuetudinis*, uti et *viatores* etiam *invitos* consistere cogant; et *quod* quisque eorem de quâque re *audierit* aut cognoverit, quærant; et mercatores in oppidis vulgus circumsistat, quibusque ex regionibus veniant, quasque ibi res *cognôverint*, pronuntiare cogant. His rumoribus atque auditionibus *permoti*, de summis sæpe rebus consilia ineunt; *quorum eos* e vestigio *pœnitere* necesse est; cum incertis *rumoribus* serviant; et plerique ad voluntatem eorum ficta respondeant." (*Cæsar.*)

2. Vix *ea fatus erat* senior; subitoque fragore
Intonuit lævum, et de cœlo lapsa per umbras
Stella facem ducens multa cum luce *cucurrit*.
Illam, summa super labentem culmina tecti,
Cernimus Idæa claram se condere silva,
Signantemque vias; tum longo *limite* sulcus
Dat lucem, et late *circum loca* sulfure fumant.
Hic vero victus *genitor* se tollit ad auras,
Adfaturque deos, et sanctum sidus adorat:
Jam, jam nulla mora est; sequor, et, *qua* ducitis, adsum.
Di patrii, servate domum, servate nepotem.
Vestrum hoc augurium, vestroque in numine Troia est.
(*Virgil.*)

II. Translate either of the following passages, into English. Give the derivations, and rules for the construction, of the words printed widely.

1. Καὶ εἶπον οἱ ἀπόστολοι τῷ Κυρίῳ, "Πρόσθες ἡμῖν πίστιν." Εἶπε δὲ ὁ Κύριος, "Εἰ εἴχετε πίστιν, ὡς κόκκον σινάπεως, ἐλέγετε ἂν τῇ συκαμίνῳ ταύτῃ, Ἐκριζώθητι, καὶ φυτεύθητι ἐν τῇ θαλάσσῃ· καὶ ὑπήκουσεν ἂν ὑμῖν. Τίς δὲ ἐξ ὑμῶν δοῦλον ἔχων ἀροτρῶντα ἢ ποιμαίνοντα, ὃς εἰσελθόντι ἐκ τοῦ ἀγροῦ ἐρεῖ εὐθέως, Παρελθὼν ἀνάπεσαι· ἀλλ' οὐχὶ ἐρεῖ αὐτῷ. Ἑτοίμασον τί δειπνήσω, καὶ περιζωσάμενος διακόνει μοι, ἕως φάγω καὶ πίω· καὶ μετὰ ταῦτα φάλεσαι καὶ πίεσαι σύ; Μὴ χάριν ἔχει τῷ δούλῳ ἐκείνῳ, ὅτι ἐποίησε τὰ διαταχθέντα αὐτῷ; οὐ δοκῷ οὕτω καὶ ὑμεῖς, ὅταν ποήσητε πάντα τὰ διαταχθέντα ὑμῖν, λέγετε, "Ὅτι δοῦλοι ἀχρεῖοί ἐσμεν· ὅτι ὃ ὠφείλομεν ποιῆσαι πεποιήκαμεν."

2. Ἐκ τούτου τοῖς μὲν στρατιώταις εἶπον συσκευάζεσθαι· ὁ δὲ Κῦρος ἔθυε πρῶτον μὲν Διὶ βασιλεῖ, ἔπειτα δὲ καὶ τοῖς ἄλλοις θεοῖς, καὶ ᾐτεῖτο ἵλεως καὶ εὐμενεῖς ὄντας ἡγεμόνας γίγνεσθαι τῇ στρατιᾷ καὶ παραστάτας ἀγαθοὺς καὶ συμμάχους καὶ συμβούλους τῶν ἀγαθῶν. συμπαρεκάλει δὲ καὶ ἥρωας γῆς Μηδιάς οἰκήτορας καὶ κηδεμόνας. Ἐπεὶ δ' ἐκαλλιέρησέ τε καὶ ἀθρόον ἦν αὐτῷ τὸ στράτευμα πρὸς τοῖς ὁρίοις, τότε δὴ οἰωνοῖς χρησάμενος αἰσίοις ἐνέβαλεν εἰς τὴν πολεμίαν. ἐπεὶ δὲ τάχιστα διέβη τὰ ὅρια, ἐκεῖ αὖ καὶ Γῆν ἱλάσκετο χοαῖς καὶ ἥρωας Ἀσσυρίας οἰκήτορας εὐμενίζετο. ταῦτα δὲ ποιήσας αὖθις Διὶ πατρῴῳ ἔθυε, καὶ εἴ τις ἄλλος θεῶν ἀνεφαίνετο, οὐδενὸς ἠμέλει.

III. Translate one of the following passages into English, and parse the words printed in italics :—

1. "Un jour Platon *expliquait* ses idées, et parloit de la forme d'une table et de *celle* d'un *verre*. Je vois bien une table et un verre, lui dit Diogène; mais je ne sais *ce que c'est que* la forme d'une table, non plus que *celle* d'un verre. Cela est vrai, dit Platon; car, pour voir une table et un verre, il ne faut avoir que des yeux; au lieu que, pour connoitre la forme d'une table et celle d'un verre, il faut avoir de l'esprit. *On demanda* a Diogène pourquoi on donnoit plutôt l'aumône aux borgnes et aux boiteux q'aux philosophes? C'est, repondit il, parceque les hommes s'attendent plutôt devenir borgnes ou boiteux, que *philosophes*." (*Fenelon.*)

2. Lorsque deux factions *divisent* un Empire,
Chacun *suit au hasard* la meilleure ou la *pire*.
Suivant l'occasion ou la nécessité
Qui l'emporte vers l'un ou vers l'autre coté.
Le plus juste *partie* difficile à connoitre
Nous laisse en liberté de choisir un maitre;
Mais quand ce choix est fait, on ne *s'en dédit* plus.
J'ai servit sous Sylla du temps de Marius
Et servirai sous lui tant q'un *destin* funeste
De nos divisions soutiendra quelque reste.
(*Corneille.*)

ALGEBRA.

SECTION I.—1. Add together $1-(1-\overline{1-x})$ and $2-(-4+5x)$.

2. Show that $\dfrac{\sqrt{3}+1}{2-\sqrt{3}}=5+3\sqrt{3}$.

3. Show that $\sqrt{13+2\sqrt{30}}=\sqrt{10}+\sqrt{3}$,

SECTION II.—Solve the Equations,—

1. $\frac{x+2}{3} = \frac{x-3}{4} = x - \frac{2x-1}{2}$.

2. $a+x+\sqrt{a^2+x^2}=b$.

3. $\sqrt{x^2+9}+\sqrt{x^2-9}=4+\sqrt{34}$.

SECTION III.—Solve one of the Equations,—

1. $\left\{\begin{array}{l} 2x \times 5y = 34 \\ 5x - 3y = 23 \end{array}\right.$.

2. $\left.\begin{array}{l} (x-y)\ (x^2-y^2)=a \\ (x+y)\ (x^2+y^2)=b \end{array}\right\}$.

3. $\left.\begin{array}{l} x^2-xy=\ 6 \\ x^2+y^2=61 \end{array}\right\}$.

SECTION IV.—1. There are two numbers whose sum is 96, and of which one is greater than the other by 16. What are the numbers?

2. In what time will the simple interest of 400*l.* be equal to the discount of 520*l.*, both being calculated at 5 per cent.

3. The shoes of two boys cost together 36*s.* a year. The first wears a pair out in 5 months and the other in 6. Now if the first had worn out a pair in 6 months, and the other in 5, they would have cost together 37*s.* a year in shoes. What was the price of each boy's pair of shoes?

SECTION V.—1. At what price per head must a farmer purchase a flock of 100 sheep, that expending 10*l.* in feeding them, and losing 9, he may be able to sell the remainder at 2*l.* each, and gain 20*l.*?

2. A man undertakes to dig an acre in 40 days; he digs the first 100 rods at the rate of 2 rods per day more than the last 60 rods; how many rods did he dig per day at first?

3. A person sets out by a coach to ride a certain distance, and then to walk back to a house on the road. The next morning he walks towards home until the same coach, on its return, overtakes him, which it does after he has walked as many miles as he did the day before, he then gets into it and rides home. He walks at the rate of *a* miles an hour, the coach travels at the rate of *b* miles, and his journey occupies him, on the first day, *c* hours, and on the second, half that time. How far is the house where he stops from his own?

Correspondence.

THE MAGIC LANTERN.

SIR,—I observe your correspondent "On the Magic Lantern as an Instrument of Instruction," expresses a wish to know what the schoolmasters think of his project. Having had some experience in the matter, I readily note down my views respecting it. I have for several years past had an annual magic-lantern entertainment for our school children upon the plan recommended, each child paying one penny for admission, and I have always found large numbers ready to avail themselves of the opportunity of attending, and I am happy to add have manifested a deep interest on the occasion. I have a very good lantern, and a set of astronomical sliders, in addition to which I usually hire about four or five dozen miscellaneous ones from an optician's, and I find that the payments of the children have always covered the expences incurred. Until very recently it did not occur to me to make the entertainment instructive as well as amusing, on account of the difficulty experienced in getting and maintaining quietness on such an occasion for any length of time; but having arranged that the assistant-master, with the aid of the pupil teachers, should maintain order while I gave a familiar explanation of the diagrams, I have been enabled to make it the medium of communicating much useful information. I have also attended a few other schools in which I have reason to believe the experiment has been successful, and I should be happy to visit any others in the neighbourhood of London in which the managers might be desirous of trying it.

If anything is to be done by way of instruction, it is indispensable that good order should be preserved, which will be found in a large school no easy task, as the views are of course exhibited in the dark, when it is needless to say that the disorderly boys (and there are such in every school) have a rare opportunity of indulging their propensities.

However, providing that the master undertakes to attend entirely to the order, and makes expulsion for the evening the punishment for any symptoms of disorder, I believe sufficient attention may be obtained. I must state that if the attendance be large, or if there be no efficient assistant master, it will be found impossible to exhibit, explain, and maintain order single-handed. Whoever undertakes to give the explanation of the views, should have order preserved for him by another, that his mind may not be distracted, which will be pretty sure to be the case if he undertakes to do the two things at once. I have found the lantern particularly useful in explaining such subjects as the rotundity of the earth, the cause of day and night, the variations of the seasons, eclipses, tides, &c., and I am sure it would be equally useful for illustrating the different subjects mentioned by your correspondent, providing that a sufficient number of schools would undertake to hire the sliders, that the original outlay might be refunded. This might easily be accomplished in any locality, if each school would contribute the pence collected, or, in other words, agree to hire both lantern and views. I shall be happy to receive communications from your readers, and to co-operate with them in carrying out your correspondent's project.

I am, Sir, your humble servant,
JOSEPH BOULDEN.

Parochial School, Clapham, March 1, 1851.

⁂ [In the letter in our last number on this subject 20*l.* should have been named as the probable cost of the slides.]

CICERO "DE NATURA DEORUM," AS AN EDUCATIONAL WORK.

SIR,—Allow me to suggest, through the medium of your pages, how valuable an educational work might be formed by the publication of Cicero's beautiful arguments (in his second book "De Naturâ

Deorum,") for the being and providence of God from final causes, with notes, correcting the unavoidable errors of the philosopher in matters of science, and strengthening his positions by the discoveries of modern times.

I do not hesitate to say that such a work from the pen of a writer, like the Dean of Llandaff, or Mr. Sedgwick of Cambridge, who should unite the accomplishments of a divine, a scholar, and a man of science would be one of the most important contributions that could be made to any educational series, combining as it would do the outlines of natural philosophy and natural history, with a passage unsurpassed in elegance, perspicuity, and force both of thought and language

I am, Sir, yours, &c.

Bath, March 12, 1851. F. K.

THE USE AND ABUSE OF GOVERNMENT GRANTS IN AUGMENTATION OF TEACHERS' SALARIES.

Sir,—The consideration of so eminently practical a question, in relation to the interests of the whole body of your subscribers, as that indicated by the above heading comes so completely within the scope of a Journal of Education, that I feel no apology is needed in requesting the insertion of a brief letter on the subject in your next number. Patrons, promoters, and managers of schools do not, in many instances, appear to have very exact notions of the design of the Committee of Council on Education in instituting the form of aid in question. Many teachers complain, and justly, that the grant which was designed as a personal advantage and special boon to themselves, by adding to the inadequate remuneration which they receive as a body, is frequently treated as an integral portion of the funds of the school, in direct contravention of the explicit aim of the Government. The whole tenor of every official document bearing upon the subject is against such misappropriation of the augmentation grants. One of these documents, the "Augmentation Broad Sheet," contains the emphatic declaration that "Grants belong exclusively to the teachers, not to the general funds of the school. Their lordships cannot sanction corresponding reductions in the previous salaries of teachers, even though more than sufficient to fulfil the conditions of the particular grant." Nothing could more clearly show that the intention of the committee in awarding these grants is exclusively to increase the emoluments of teachers, and not to relieve the managers of schools of any portion of their responsibility in providing from local resources the same amount of salary which they would have felt themselves called upon to raise in the absence of all extraneous aid. But this design of the Government is frequently overlooked or misapprehended in the arrangements between managers and teachers. Cases could be cited in which incompetent teachers have been removed, and their places supplied by well-qualified certificated teachers, to whom *diminished* salaries have been given, expressly on the ground that the certificates of merit to which their superior qualifications had entitled them, had also secured to them, conditionally, certain payments from the parliamentary grant, and that, in such instances, the managers were consequently relieved to a corresponding amount of salary to be provided. Occasionally a teacher is engaged at a fixed guaranteed salary, which is made to include the sum payable from the Committee of Council to possessors of certificates of merit. Such arrangements tend to obscure the design of the Government in making these grants, and ought, therefore, to be in all cases avoided.

The minutes of 1846, which instituted augmentation grants, and every subsequent document of the Committee of Council bearing any reference to schoolmasters' salaries, distinctly enunciate, as the conviction of those charged with the distribution of the parliamentary fund, that the scale of remuneration heretofore provided for teachers is quite inadequate to the requirements of that position, which it is the interest of society that the instructor of even its humblest poor should occupy. It was therefore wisely determined that the certificate of merit should be more than a mere honorary testimonial to the requirements and aptitudes for their profession of which teachers might give evidence on examination. It was made the index which should regulate, as the primary condition, the amount of the annual allowance to which it gave its possessor a conditional claim. But the function of the Committee of Council is administrative only. It may protest, as it has done in the most emphatic manner, against the misapplication of the aid which it distributes; but it has not the power to enforce compliance with its equitable requirements. It is entirely optional with managers to second, or to thwart, or to ignore the design of the Education Committee in augmenting teachers' salaries. In the great majority of cases I freely acknowledge that school promoters do not sacrifice the interests of the teachers to those of the subscribers, in reference to these grants. But it nevertheless happens that, in too many cases, the difficulty of raising the requisite funds for conducting an elementary school, is made the excuse for reducing the salary of the master; and that such reduction would not have been attempted, if it were not supposed to be compensated by the government augmentation grant to certificated teachers. As one sincerely desirous to see the work of the clergyman and the schoolmaster go hand in hand, I trust always to find the former the ever-constant champion and advocate of the interests of the latter. I trust that in their influential position as the usual chairmen of school committees, the clergy will ever raise their voice against any relaxation in local effort and personal sacrifice to supply a fit salary for the schoolmaster, even though the master should have acquired the conditional right to an annual payment from the parliamentary grant.

I am, Sir, your obedient servant,
A SCHOOLMASTER.

March 26, 1851.

Notices of Books.

PLANE TRIGONOMETRY, WITH THE USE OF LOGARITHMS (PART I.). BY THE REV. J. W. COLENSO, M.A., RECTOR OF FORNCETT ST. MARY, NORFOLK, LATE FELLOW OF ST. JOHN'S COLLEGE, CAMBRIDGE. (London, *Longman and Co.*)

FIRST BOOK ON PLANE TRIGONOMETRY, COMPRISING GEOMETRICAL TRIGONOMETRY, AND ITS APPLICATION TO SURVEYING, WITH NUMEROUS EXAMPLES. BY G. W. HEMMING, M.A., FELLOW OF ST. JOHN'S COLLEGE, CAMBRIDGE. (London: *Taylor, Walton, and Maberley.*)

THE two neat little works whose titles are connected with the present notice, not only treat on the same subject, but in both it is carried to nearly the same extent. The author of the former of these treatises announces that Part II., on the higher parts of trigonometry, will be published shortly, and the author of the latter is engaged in the preparation of a short treatise on analytical trigonometry, with the methods of calculating logarithmic and trigonometrical tables.

In Mr. Colenso's work the discussion of the measurement of lines and angles, and the trigonometrical ratios of an angle occupy the first and second chapters. The trigonometrical functions considered as belonging to the subtending *arc* rather than to the *angle* are also defined, and the changes in sign and magnitude of the trigonometrical functions are traced through all the four quadrants, with reference to *ratio-definitions* as well as to *line-definitions.* In the third chapter the trigonometrical ratios of the sum and difference, multiples and submultiples of angles are elegantly investigated, and numerous interesting and useful exercises are interspersed for illustration. The probable origin of the inverse notation is alluded to thus:—

> "If $tan\ A=m$, then $A=tan^{-1}m$." "The origin of this notation is easily seen: for, if we could for a moment conceive the symbol *tan* separated from the angle A, we might write the above equation $A=\frac{m}{tan}$, or by the theory of Indices, $A=tan^{-1}m$."

The calculation of the numerical values of trigonometrical ratios, and the properties and solution of triangles are considered in the three following chapters. The useful device of throwing certain expressions into *factors* by means of the introduction of a *subsidiary* angle, and thus adapting them for logarithmic computation, is also explained and enforced.

The next chapter contains a few exercises in surveying, and the usual application of trigonometry to the determination of heights and distances. The investigation of logarithmic series, and the properties of logarithms are very neatly deduced in the eighth and concluding chapter. The use of complementary logarithms is to convert the operation of subtraction into that of addition, and we think that the contraction Mr. Colenso has employed to denote this change is the best that has hitherto been devised, and we most cordially recommend its universal adoption. The contraction *colog.* is a most appropriate one, inasmuch as it is self-interpreting, and consequently not liable to be misunderstood. This little volume, consisting of 128 pages, is enriched with numerous excellent examples, and contains much valuable and interesting matter.

Mr. Hemming's treatise is strictly confined to geometrical trigonometry, and thus the subject is placed more within the reach of those who have but little time to devote to the acquisition of a knowledge of this useful and interesting branch of science. After defining the trigonometrical ratios, and tracing the changes of the different functions of an angle as it varies from zero to two right angles, Mr. Hemming deduces the trigonometrical functions of more than one angle, giving several elegant geometrical investigations, and leaving others as exercises for the student. The properties and use of logarithms are given in the third chapter, as well as the modification of formulas which require addition or subtraction, before logarithmic computation can be applied to them. This modification is effected by the introduction of new angles, termed *subsidiary* angles. The next chapter is entirely appropriated to the solution of triangles, and a few examples are given for exercise. The fifth chapter treats on surveying, and here we have a short description of the instruments employed, viz. the *chain*, the *level*, the *theodolite*, and the *sextant*. The principle of the *vernier* is also explained, and the numerous examples of the determination of heights and distances occupy nearly the whole of this division. A short chapter on the areas of triangles and polygons, and the radii of their inscribed and circumscribed circles, concludes the volume. Mr. Hemming's little treatise will be found very useful to those students who have not leisure time to pursue the subject to any great extent.

PROBLEMS IN ILLUSTRATION OF THE PRINCIPLES OF PLANE COORDINATE GEOMETRY. BY WILLIAM WALTON, M.A., TRINITY COLLEGE, CAMBRIDGE. (Cambridge: *John Deighton*. London: *Simpkin & Co.*; *G. Bell.*)

Coordinate geometry is an interesting and extensive branch of modern mathematical science. Invented more than two hundred years ago by the celebrated French geometer, Descartes, it has ever since been cultivated with great success by the continental mathematicians. Not many years ago the "new science" of coordinate geometry was almost unknown in this country, but several valuable treatises, exclusively devoted to the subject, and accessible to most readers, have recently appeared, diffusing a knowledge of its principles among all classes of students, and investing it with an importance in some measure commensurate with its unquestioned merits, as one of the most powerful instruments of research with which the geometer can be furnished. But while many excellent works on coordinate geometry are now in the hands of students, and while in most of these publications the theory of the science has been developed with much ability and success, the want of an ample collection of examples in illustration of principles has been felt and acknowledged for some time past. To the student who has acquired an accurate knowledge of the theory of any portion of mathematical science, a collection of examples for exercise in the application of the principles of that particular branch, judiciously selected, and arranged in a connected and classified form, cannot fail, if carefully perused, to be productive of lasting advantage. The want of such a set of examples in coordinate geometry is now happily supplied by the publication of the excellent collection of problems which forms the subject of the present notice.

The author of these problems in plane co-ordinate geometry is already well known to mathematicians by his various writings and publications, especially by his two valuable collections of problems,—the one in illustration of the principles of theoretical mechanics, and the other in illustration of the principles of theoretical hydrostatics and hydrodynamics. These are both admirable productions, and the work now before us fully sustains the high reputation of its talented author. We shall briefly notice some of the most prominent features of Mr. Walton's valuable collection of problems, taking the subjects in the order of their arrangement, and premising that the author adopts the judicious plan of giving in the first part of each section of the work the solutions *in extenso* of several well-chosen examples, and in the remaining part of the section a selection of unsolved exercises, illustrative of that particular principle to which the section is appropriated.

1. *The Straight Line.*—On the straight line are given various elementary problems of an interesting character, their solutions being effected by referring the straight line both to rectangular and to oblique axes of coordinates. The use of the polar equation of a straight line is shown in the solution of one or two problems, and these are followed by numerous examples producing rectilinear *loci*. The problems on transversals are treated in a very perspicuous and elegant manner, both by means of the symmetrical equation of a straight line, $\frac{x}{a}+\frac{y}{b}=1$, which is termed the method of *explicit parameters*, and also by the method of *implicit parameters*, in which the equations of straight lines are expressed by $u = o$, $v = o$, $w = o$, *etc.*; where u, v, w, *etc.*, are of the form $x \cos. \epsilon + y \sin. \epsilon - \delta$. In these two extensive sections, which are entirely appropriated to the discussion of problems on transversals, the solutions are models of excellence, and worthy of the best attention of the student. This division of the work concludes with several examples in reference to the areas of rectilinear figures. Mr. Walton makes frequent use of the equation of a straight line in the form $x \cos. a + y \sin. a = \delta$, since the expression for the distance of a point $(x\, y)$ from this line is of the form $x \cos. a + y \sin. a - \delta$, which is easily recollected.

2. *The Circle.*—The author has selected elegant and appropriate examples in this division, and their solutions are effected by taking for axes of coordinates perpendicular diameters,—any two straight lines at right angles, or oblique to each other,—and also two tangents to the circle. The polar equation to the circle, and the polar equations to tangents and chords, find their application in the solution of some useful examples, and several of the succeeding sections contain exercises on poles and polars, radical axes, centres of similitude, etc., and inscribed and circumscribed polygons. Numerous examples producing circular *loci* complete this division.

3—5. *The Parabola, Ellipse, and Hyperbola.*—The examples in these three parts are, as usual, selected from various sources, and admirably fitted for illustrating the principles of the conic sections. The equation of the tangent to a conic section, involving a function of the angle which the tangent makes with the principal axis of the curve, has been found very effective in facilitating the demonstration and investigation of several useful properties of conic sections, especially in thos problems of tangency which do not involve the consideration of th point of contact. Owing to its utility in examples relating to tangen e it has been termed the *magical equation* to the tangent. There is little *magic* in mathematics; magic squares and magic circles are unknown in Euclid's vocabulary; and we are of opinion that a more appropriate term might be devised to distinguish this useful form of the equation to the tangent. We are not, however, prepared with a more suitable phrase, and we would merely suggest the adoption of the term *angular equation* instead of *magical equation*. The equation involves the trigonometrical tangent of the inclination of the tangent to the principal axis of the curve, and the term *angular equation* is distinct and explicit enough to prevent its being mistaken for, or confounded with, the well-known and appropriate term *polar equation*.

If $\tan^{-1} a$ be the angle which the tangent makes with the principal axis of the curve then $y = a x + \frac{m}{a}$ is the magical (query *angular*) equation to the tangent to the parabola, $y^2 = 4 m x$; and $y = a x + (a^2 a^2 \pm b^2)^{\frac{1}{2}}$ are the magical (*angular*) equations to the tangents to the ellipse and hyperbola $\frac{x^2}{a^2} \pm \frac{y^2}{b^2} = 1$.

Several of the problems have reference to poles and polars, parabolic, elliptic, and hyperbolic *loci*, together with others involving parabolic and elliptic envelopes, and each division is closed with a miscellaneous collection of examples, affording abundant exercise for the student.

6. *Lines of the second order.* This is the last division of the volume, and several of the examples are extracted from sources inaccessible to many students. The problems are here necessarily more general than in the preceding parts of the work, applying to all the conic sections, and it is enriched with the most elegant methods of solution which the united efforts of the best geometers have been able to devise.

In concluding this brief notice of a publication which has hitherto been a desideratum, we must not omit to remark that, to select and arrange in a connected and classified form, no fewer than 896 examples in illustration of the principles of plane coordinate geometry, is indeed no light task. Yet this has been accomplished by Mr. Walton in the volume before us; and whether we regard the elegance of the methods of investigation employed, or the ability with which these methods are conducted, it alike demands our warmest commendation. Indeed we have no hesitation in stating that we could not put into the hands of a student any work containing so many elegant analytical solutions as he will find in this volume, and we cordially recommend it to all who are desirous of possessing the best and neatest solutions to an extensive and valuable collection of useful and interesting problems.

SMALL BOOKS ON GREAT SUBJECTS. NO. XVIII. THE PHILOSOPHY OF RAGGED SCHOOLS. Pp. 128. (London: *W. Pickering*, 1851.)

SOME of the philosophy in this little book is, to say the least, of a very questionable sort, and such as we cannot recommend. But the testimony which it bears in favour of ragged schools, when relating their origin and progress, well deserves attention. John Pounds, a poor shoemaker of Portsmouth, is mentioned as probably the first who opened a school, strictly of this description. Of him it is recorded, that when he died in 1839, the poor children, who then formed his class, wept, and some of them fainted on hearing the news. Soon after his death a ragged school was established at Aberdeen, first to afford only instruction to all the vagrant children of the city; and when this was but partially successful, it was determined to supply them also with food and industrial occupation. Of this attempt the managers state as the result, "that whereas a few years since there were 320 children in the town, and 328 in the county, who prowled about the streets, and roved far and wide, cheating and stealing their daily avocation; now a begging child is rarely to be seen, and *juvenile crime* is comparatively unknown." Of a ragged school opened in one of the worst parts of London, it is mentioned, that "the beneficial effect of it was felt almost immediately after its establishment by the shutting up of two notorious houses, one a coffee-shop, named by the boys themselves the "Dark Den," where they used to share the produce of their plunder; the other a house of ill-fame, (now used as the industrial school,) kept by the mother of one of the boys. The son and daughter of this woman we took into our school, and they were the means of breaking up this den of infamy." An anecdote is related of a notorious thief, who asked to be allowed to go over one of the ragged schools, and then said, "I shall subscribe a sovereign annually, for if these schools had been in existence some years ago, I should not have been what I now am." "At least 2000 children," says a teacher, "have passed through our ragged school since its commencement. I have watched and questioned many of them, and have invariably found that the cause of their distress and misery may be traced to the parents, more especially the mothers." Some of these children are orphans, many of them the children of thieves, or persons of that description, who have been early trained to bring their small pilferings to the common stock, and beaten if they returned empty-handed. In coming to a ragged school, they enter a room where persons, at least in easy circumstances, are found voluntarily to expose themselves to insult and ill-usage, and to respond only by gentle expostulations. The first feeling, as the writer remarks, is perhaps incredulity; but the next is confidence in, and affection towards those who seem to have no earthly interest in what they are doing. And, he adds, it is not easy for those who have never seen it, to form any conception of the fond affection with which these children regard their favourite teachers. Though the sharpness of observation and promptitude which a life of thievery makes necessary, has the effect of developing the intellect at a very early age, and though there is generally a good will to learn, yet it is found by the teachers of ragged schools, that the attention of the pupils very quickly flags, and can scarcely be kept up for above half an hour at a time. This leads the author to speak of amusements; and from what he says upon this subject we will give in conclusion two extracts, as both confirmatory and illustrative of what has been recently advanced in the pages of the "Journal:"—

"Nothing is a more general taste than that of music, and it has been found very advantageous to set songs of an innocent or moral description to known and easy tunes, which the boys could learn and sing for their entertainment, besides the hymns taught them. Two or three concerts of this kind, n which the boys and teachers were the sole performers, have been held, and with the greatest success; some bread and butter, or pudding, concluding the entertainment, to the satisfaction of all.

"As vocal music is the most attractive, as well as unattended with any expense, it presents itself at once as one of the easiest and best modes of supplying the great desideratum of innocent amusement. The slight knowledge of the science which is requisite to singing in parts might be communicated with ease: the nature of a third, fifth, and octave is easily understood, and the very exercise of thus forming the common chord by means of different voices is amusing: the ear once formed to these intervals would very soon become acquainted with the others, and the few chords which enter into ordinary compositions would be easily acquired. The knowledge of music thus given would not be great, but these are the first steps of music as a science; and if any one among the children thus taught the rudiments should choose in after years to go further, he has at any rate a foundation laid for instrumental no less than vocal performance.

"I have mentioned music as one of the amusements which almost all are alive to, but there are others for which a taste might be awakened. Drawing especially many children find pleasure in, and by means of a black board and chalk it may be practised at a very small expense. The accuracy of the eye, which even a slight knowledge of this art engenders, is essentially useful in every sort of mechanical operation. A few large prints hung on the walls, and a board or two properly prepared, would be all that would be required to enable many of the children to amuse themselves pleasantly in the school when weary of other things, and would open to them not only a source of recreation but of after-profit, should they arrive at enough proficiency to be pattern drawers. The reading to them sometimes an amusing story, or travels, by some one who can give it point and effect, would create a higher taste; for the reader could stop to explain what was difficult, and the cheap literature of the day supplies enough of really good publications to meet the demand of the poorest, if the taste for such could be aroused. All these and many more modes of recreation are possible, not only in ragged schools but in parochial ones."

OF A LIBERAL EDUCATION IN GENERAL; AND WITH PARTICULAR REFERENCE TO THE LEADING STUDIES OF THE UNIVERSITY OF CAMBRIDGE. PART I. PRINCIPLES AND RECENT HISTORY. PART II. DISCUSSIONS AND CHANGES, 1840—1850. BY W. WHEWELL, D.D. (*London*, John W. Parker.)

This work well deserves the attention of those who take an interest in the higher branches of education. Though it treats more especially of the studies at Cambridge, it throughout discusses them with reference to the principles by which a liberal education must everywhere be regulated. The author has, to use his own words, "during a long course of years, occupied a series of active educational offices in the university, and has been engaged, along with others, in shaping most of the changes which have, during that time, taken place in the educational system of the university; and he has so far attended to the general principles of education, as to have repeatedly published upon them." These circumstances, together with his distinguished name, his talents and varied acquirements, and the commanding position which he still holds, render his observations of no small importance, both to those who are engaged in preparing young men for the university, and also to those who are themselves either preparing for, or going through, a course of university education, and are desirous of fully understanding the objects of such a course, and the benefits that may be derived from it. Information, more comprehensive and more definite, upon these subjects, has long been needed, which this publication by Dr. Whewell will do much towards supplying. In noticing such a work, our limits do not permit us to do more than to invite attention to it, and to give a general outline of its contents. We may hereafter find occasion to speak more in detail upon some of the principles laid down in it.

The author begins by observing, that the education of the upper classes, termed liberal education, and the higher education, is important, both as being the education of those who must direct the course of the community, and as alone exhibiting, in any completeness, the idea of education. For the education of the middle classes (that is, we suppose, what is sometimes spoken of as the lower division of the middle classes) will commonly be, in its highest parts, animitation of the higher education, more or less incomplete; and the education of the people, when they are educated, must generally be an elementary education, including little more than the first elements of the higher education. In this work the author expressly omits the consideration of moral and religious education, and treats of intellectual education only, and of that with especial reference to the present condition of the University of Cambridge. This intellectual education he divides into two kinds, which, with reference to these subjects, he describes as *Permanent* and *Progressive* Studies. To the former belong those portions of knowledge which have long taken their permanent shape—ancient languages, with their literature, and long-established demonstrated sciences. To the latter belong the results of the mental activity of our own times—the literature of our own age, and the sciences in which men are making progress from day to day.

The permanent studies he considers to be mainly such as are fitted to educe two principal faculties of man, considered as an intellectual being—namely, Language and Reason. The faculty of language is chiefly cultivated by the study of classical authors and of philology; that of reason, by the study of mathematical works, in which truths respecting measurable quantities are demonstrated by chains of the most rigorous reasoning, proceeding from principles self-evident, or at least certain; and it is from this employment of them that such studies derived their name of *mathematics* or disciplinal studies. Under this head may be ranked logic, as well as mathematics. As applied to those who pass through the usual course of English schools and universities, grammar and arithmetic at the schools—classical authors and logic, or classical authors and mathematics, at the universities—have represented the two classes of permanent studies by which the faculties of language and reason are to be educed and unfolded. In permanent classical studies is included not only to know and understand the text of classical authors, but to understand the grammar of their sentences. In permanent mathematical studies, the geometrical modes of treating the various branches of mathematics—the geometrical forms of trigonometry, conic sections, statics, and dynamics, and not any analytical substitutes for them, must be employed. The permanent studies must necessarily precede, in order to form a foundation for the progressive; for the present progress has grown out of the past activity of men's minds, and cannot be intelligible, except to the student of past literature and established opinions.

But the progressive studies must be added to the permanent; for though they may form the business of life, they may with advantage be begun in the specially educational period of it, before each man's course of study is, as in after life it generally is, disturbed and perplexed by the constant necessity of action. And progressive studies are in particular necessary in the science of mathematics, in which there has been for the last three centuries, and still is, a rapid progress taking place. Almost all the modern portions of mathematics are of the analytical kind, and to the copious use of analytical mathematics among permanent educational studies, Dr. Whewell is strongly opposed. To his able observations on this subject, in a section devoted to it, we must be content to refer our readers. He considers that these objections do not apply to the case of progressive studies; that, when the reasoning faculties have been educed and confirmed, the student's powers of symbolical calculation, and his pleasure in symbolical symmetry and generality, need no longer be repressed or limited; and that, when once well disciplined in geometrical mathematics, the student may pursue analysis safely and surely to any extent. He further adds, that in most minds the significance of analytical methods is never fully understood, except when a foundation has been laid in geometrical studies. He then points out those portions of modern mathematical literature which are best suited to be admitted, as progressive studies, into a liberal education; for the details of which we must refer our readers to the work itself. He also observes, that classical studies occupy an important place in education as progressive studies, which engage men in the speculations, discussions, and mental movements still going on. Ancient philology, philosophy, and history, are the subjects of progressive speculations. The origin, growth, revolutions, and decline of languages, systems, and states, are still matters full of interest for the classical student; and a classical education would not be the highest education, if it did not impart to the student a share in this interest, and give him some acquaintance with these speculations. In classical, as well as in mathematical educational studies, it is important to keep the permanent and the progressive studies distinct, and especially not to allow the latter to supersede the former. For no second-hand knowledge of the philological criticism, philosophical doctrines, and political events of the Greeks and Romans, can at all compensate, as a branch of education, for the lack of a knowledge of the original authors in the original languages.

Having thus marked the distinction between permanent and progressive studies, he proceeds to observe, that by assigning importance to the former, education is not made stationary and unprogressive, because by recommending the latter also, the subjects taught are brought up to their most recent condition. But in order to prepare the student for such subjects, there is a necessity for permanent studies, by which the habits of following scientific reasonings, and interpreting classical writings, may be formed and fixed. The progress of the human mind is one of the main objects of education; and the progress of the individual mind, as a participation in the faculties and fortunes of the mind of man in general: but in order to present and future progress, an acquaintance with the past is requisite. Considered with reference to mental progress, a large portion of education is preparatory only; but it is an indispensable preparation. If we reject the discipline of permanent studies, we may indeed still learn to use the phrases in which men express the recent progress of science or literature, and may flatter ourselves that we share in the superiority which such a progress bestows; but, in reality, such phrases have for us no real meaning, but are mere empty forms of language. The charge of filling the mind with conventional forms, void of real value and efficacy, lies far more truly against those who pretend to teach new truths to persons incapable of understanding them through their want of ordinary culture, than to those who dwell long upon those parts of human science and literature which have, in all ages, been found to be the most effective means of cultivating the intellect and the taste.

Upon the union of mathematical and classical studies, both permanent and progressive, he observes:—" No education can be considered as liberal, which does not cultivate both the faculty of reason, and the faculty of language; one of which is cultivated by the study of mathematics, and the other by the study of classics. To allow a person to follow one of these lines of study, to the entire neglect of the other, is not to educate him. It may draw out his special personal propensities; but it does not draw out his general human faculties of reason and language. The object of a liberal education is, not to make men eminently learned or profound in some one department, but to educe all the faculties by which man shares in the highest thoughts and feelings of his species. It is to make men truly men, rather than to make them men of genius, which no education can make them."

For the manner in which the author applies these general principles to the recent and present condition of education at Cambridge, and to the alterations that have been proposed and in part adopted there, we must refer our readers to the work itself. In the concluding chapters of this first part, much useful information will be found upon college lectures and professorial lectures; upon examinations; upon the relation between the university system and school teaching; and upon preventing superficial reading; as also an interesting account of the old system of Cambridge, and the successive changes it has undergone, with suggestions for its further improvement, and observations upon the system of private tuition there. In the second part, those suggestions, noticed in the first part, which have since been adopted by the University, are detailed, together with remarks upon the four triposes, and upon the courses of reading suitable for each. Some remarks in both parts upon the relation between the university system and school teaching, and upon the great classical schools, appear to us so important, that we shall hope to give some extracts from them in a future number of our journal.

THE FAMILY ALMANACK AND EDUCATIONAL REGISTER FOR THE YEAR OF OUR LORD, 1851. (London: *J. H. Parker.*)

THE first issue of a very useful publication, which is to be continued annually. It contains, in addition to an almanack crammed with information, the statistics and lists of officers of all the universities and colleges, a list of the foundation and grammar schools in England and Wales, with the emoluments, scholarships, and exhibitions attached to them. As regards the schools, the information has for the most part been furnished by the masters themselves. It deserves encouragement for its utility, and as a record of the munificence of our ancestors. We wish we could say that their pious intentions were always fully carried out.

OBSERVATIONS ON TEACHING ENGLISH GRAMMAR; WITH SUGGESTIONS FOR A SYSTEMATIC COURSE OF INSTRUCTION IN NATIONAL SCHOOLS. BY JOSEPH BOULDEN. (*Groombridge.*)

A PAPER read at the monthly meeting of the Church Schoolmasters Association, which we can recommend to elementary teachers as containing some useful remarks suggested by experience.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 93.—*Proposed by Mr. Sam Dyer.*

IF a clock gains 24 minutes per day, at what time will the hands be together between 3 and 4 o'clock, supposing them to start together at 12.

Answered by Mr. Royds and Mr. Sheppard.

Let x = no. min. that the hour-hand is past 12 o'clock; then $12x$ = no. min that the minute-hand will have gone over; but the minute-hand will have gone over 180 minutes more than the hour hand;

$$\therefore\ 12x - x = 180, \quad \therefore\ x = 16\tfrac{4}{11}.$$

Now to find the time by a true clock. It will be observed, that since the false clock gains 1 min. per hour, of the true time, the gain in 61 min. of the false clock will be 1 min.; therefore the total time gained will be $\frac{1}{61}$ of 3 h. $16\frac{4}{11}$ min. $= 3\frac{147}{671}$ min. Hence we have the true time past 3 o'clock $= 16\frac{4}{11} - 3\frac{147}{671} = 13\frac{97}{671}$ min.

QUES. 94.—*Proposed by Prismoid, Tewkesbury.*

A person walks in a straight line the distance of 100 yards; he then turns to the left at an angle of 30°, and walks 100 yards; he then turns to the right at an angle of 60°, and walks 100 yards, as before; it is required to find his distance from the point of starting.

Answered by Mr. Herbert, Mr. Crampton, Mr. Brown, Mr. Pinder, and Mr. Hall.

Let A B, B C, and C D be the successive straight lines over which the person walks. Join A D, and B D; then A B D will be a right-angled triangle, having A B = B D = 100 yds.

$$\therefore\ AD = \sqrt{AB^2 + BD^2} = \sqrt{2 \times 100^2} = 141{\cdot}42 \text{ yds.}$$

QUES. 95.—*Proposed by Mr. Crampton.*

What is the length of a pendulum, which oscillates thrice as often in a minute as it has inches in its length?

Answered by Mr. Sothern, Prismoid, Mr. Yoel, Mr. Sheppard, and E. Whittle.

Let x = the length of the pendulum; then

$$\text{the no. oscillations per min.} = 3x;$$

$$\therefore \text{ time of each oscillation} = \frac{60}{3x} \text{ sec.} = \frac{20}{x} \text{ sec.}$$

Now the length of a second's pendulum at London is 39·139 inches, and the lengths of different pendulums vary as the squares of the times of vibration;

$$\therefore 39{\cdot}139 : x :: 1 : \left(\frac{20}{x}\right)^2,$$

$$\therefore x = 25{\cdot}02 \text{ inches nearly.}$$

LIST OF MATHEMATICAL ANSWERS.

T. Sothern, Burtonwood, ans. 93, 94, 95; J. Sheppard, ans. 93, 94, 95; J. Herbert, Woolton, ans. 93, 94, 95; H. Pinder, London, ans. 93, 94, 95; J. Royds, Belfield, ans. 93, 94, 95; J. Brown, Barton, ans. 93, 94; G. Hall, Audley, ans. 93, 94; F. R. Crampton, St. John's Wood, ans. 93, 94, 95; W. H. Yoel, Shalbourne, ans. 93, 94, 95; E. Whittle (a power-loom weaver), Blackburn, ans. 95; Prismoid, Tewkesbury, ans. 93, 94, 95; Emma Royds, Hollingworth, ans. 93, 94, 95; S. C. Teston, ans. 93, 94; W. Wakely, Marlborough, ans. 93, 94; T. Dungate, Iglesham, ans. 94; R. Drawde, Sunderland, ans. 93, 94, 95; W. Righton, ans. 93, 94, 95; S. Dyer, Wanstead, ans. 93, 94, 95; W. Davison, Sunderland, ans. 93, 94, 95; J. Bolton, O. Malton, ans. 93, 94, 95; Danos, ans. 93, 94, 95; W. Davis, Coniston Cold, ans. 93, 94; G. Morris, Gosport, ans. 93, 94, 95; A. M. Gillingham, ans. 93, 94, 95; J. Salter, Durham, ans. 93, 94, 95; J. B. Bayley, Uttoxeter, ans. 93, 94, 95.

NEW QUESTIONS,

TO BE ANSWERED IN OUR NUMBER FOR MAY, 1851.

QUES. 96.—*Proposed by J. H.*

Find the weight of a circular silver shield 1 foot 10 inches in diameter, and ·075 of an inch thick, the specific gravity of silver being 10·474. Find also its value at 6*s.* 9*d.* per ounce Troy.

QUES. 97.—*Proposed by Mr. Whitham, Battersea.*

Given the two adjacent sides of a parallelogram and the included angle, to find an expression for the tangent of the angle of intersection of diagonals.

QUES. 98.—*Proposed by Tom Tomkins.*

A body of w lbs. acquired a velocity of v feet per second in descending an inclined plane, whose coefficient of friction is f, and perpendicular height h feet; required the inclination of the plane.

CLASS LIST OF CANDIDATES.

Certificates of Merit.

CLASS LIST of Candidates for Certificates of Merit, examined before her Majesty's Inspectors, at the several undermentioned Training Schools, on the 16*th of December,* 1850, *and following days.*

Males.

	No. of Candidates.	First Class.	Second Class.	Third Class.	Total Certificat es.
Battersea . . .	43	1	5	12	18
Carmarthen . . .	30	1	4	9	14
Chelsea, St. Mark's .	49	1	14	12	27
Cheltenham . . .	30	3	5	8	16
Chester	40	..	6	12	18
Durham	11	..	1	4	5
Kneller Hall . . .	5	..	3	1	4
York	29	..	6	6	12

I. Battersea.—43 candidates; 18 certificated.

Masters.—*Second Class* (*2nd Division*). James Easton, St. George's, Borough; George Hall, Audley Grammar School, Newcastle-under-Lyne.—*Third Class* (*2nd Division*). William Humphreys, Coley, near Halifax; James Reynard, Tamworth, Sir R. Peel's. (*3rd Division*). George Hullah, Escrick Park, Yorkshire.

Students.—*First Class* (*3rd Division*). John Blain.—*Second Class* (*2nd Division*). George Howe. (*3rd Division*). Charles Spencer, George Henry Tucker.—*Third Class* (*1st Division*). Thomas Crow, William Pousford, John Rowlatt. (*2nd Division*). Kobert Hanley. (*3d Division*.) Josiah Dearman, Richard Edwin Saunders, John Sly Watts, John Edward Rood, Thomas Smith.

II. Carmarthen.—30 candidates; 14 certificated.

Masters.—*Third Class* (*1st Division*). David Davies, Heyop, Knighton. (*2nd Division*). Owen Poole Thomas, Pwllheli N. S. (*3rd Division*). Thomas Daniel Davies, Britonferry Ironworks S., near Neath.

Students.—*First Class* (*3rd Division*). Richard Morgan Goyne.—*Second Class* (*1st Division*). David Thomas. (*2nd Division*). William Matthew Thomas. (*3rd Division*). John Porter, George Thomas.—*Third Class* (*1st Division*). Henry Edmund, James Webber. (*2nd Division*). John Davies. (*3rd Division*). James Hutchinson, David Rowlands, William Atherby Phillips.

III. Chelsea, St. Mark's.—49 candidates; 27 certificated.

Masters.—*First Class* (*3rd Division*). George Merchant, Snenton N. S., near Nottingham.—*Second Class* (*1st Division*). John Bamforth, Mills Green S., near Frome; Richard Hind Hedger Holmes, Leigh N. S., near Rochford; William Sheard Norris, Horbury S., near Wakefield. (*2nd Division*). Robert Blyth, Windsor, St. Mark's; Abraham Haworth, Prestwold S. (Loughborough); Henry Mortimore, Lichfield, St. Mary's.—*Third Class* (*3rd Division*). William Dawson, Hurstmonceaux, near Hailsham.

Students.—*Second Class* (*1st Division*). Alfred Charles King. (*2nd Division*). Thomas Izod, William Read, Richard Phillips, Thomas Rossiter. (*3rd Division*). William Roe Bensley, Joseph Merriman, William Humphrey.—*Third Class* (*1st Division*). William Folkett, Frederick Thorn, Charles Henry Phillips, John Alldritt Woolley. (*2nd Division*). William Henry Bliss, John Dare, William Scott, James Bugden, Tom Owain Jones. (*3rd Division*). Richard Botheras, John Brown.

IV. Cheltenham.—30 candidates; 16 certificated.

Masters.—*Second Class* (*2nd Division*). William Baker, Liverpool, St. Luke's N. S.

Students.—*First Class* (*3rd Division*). Hezekiah Hawkins, Henry nesimus Moyse, George Horatio Hodges.—*Second Class* (*1st Division*). Henry Evers, William James Ambling. (*2nd Division*). Thomas Edgeley, 3rd *Division*). John Lane.—*Third Class* (*1st Divison*). Horace Coombes, George Matthews, William Hammond. (*2nd Division*). William Gare, Robert Morris, William Millwood.—*Third Class* (*3rd Division*). William Edgar Gray, Edwin Selkirk.

V. Chester.—40 candidates; 18 certificated.

Masters.—*Second Class* (*3rd Division*). Charles Bowlker, Colton, Milnthorpe.—*Third Class* (*2nd Division*). Richard Emerson, Kirk Onchan, Douglas (Isle of Man); Robert Parkinson, Everton, St. George's, near Liverpool. (*3rd Division*). Robert Cowburn, Wilton, Northwich.

Students.—*Second Class* (*1st Division*). George Peter Cartwright. (*2nd Division*). Samuel Shepley Lees. (*3rd Division*). Matthew Corwen, James Stainbank, Simeon Hough.—*Third Class* (*1st Division*). John Pollard. (*2nd Division*). Richard Dawson, James Seddon. (*3rd Division*). James Gornall, James Malcolmson, John Witter, Thomas Heywood, Robert Varley, John Wood.

VI. Durham.—11 candidates; 5 certificated.

Second Class (*3rd Division*). John Wild.—*Third Class* (*1st Division*). George Ager. (*2nd Division*). Robert Dickinson. (*3rd Division*). Jonathan Holmes, George Scott.

VII. Kneller Hall.—5 candidates; 4 certificated.

Second Class (*3rd Division*). Walter Baughan, John Cole, Charles James Butler Hurst.—*Third Class* (*2nd Division*). John Powell Hughlings.

VIII. York.—29 candidates; 12 certificated.

Masters.—*Third Class* (*3rd Division*). Robert Southwick, Great Wansford, Driffield; Henry Weatherill, Sledmere, Malton.

Students.—*Second Class* (*1st Division*). Robert Charlton. (*2nd Division*). Joseph Hall, John Spink. (*3rd Division*). Joseph Washington Hirst, John Wilkinson, James Warriner.—*Third Class* (*1st Division*). Samuel Thomas Baldry, Joseph Sugg, Robert Charters. (*2nd Division*). Joseph Ross Graham.

STATE OF PRIMARY INSTRUCTION IN THE DEPARTMENT OF TARN DURING THE SCHOOL YEAR 1849-50.[*]

REPORT OF MON. A. DOMERGUE, INSPECTOR.

Primary instruction includes the elementary and superior, the communal and private schools. Some of these are attended exclusively by boys, some by girls, and some by infants, while others are *common* [†] schools; that is, attended by both boys and girls. There are also classes for adults, a primary normal school for masters, and another for schoolmistresses.

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[*] France is divided into 86 departments, which are subdivided into *arrondissements*; and these again into *cantons* and *communes*. Each *department* is governed by a *prefect*.

[†] Schools where boys and girls are taught together are generally termed in this country *mixed schools*.

Boys' Schools.—I have compared the results given this year with those stated in the report for 1848. This comparison has enabled me to show a perceptible progress. There are 8 schools and 807 pupils more than there were in 1848. In only one of the arrondissements the pupils attending the public schools have decreased; but this diminution is, to a certain extent, compensated by an increase in the numbers attending the private schools. This diminution is the more to be regretted, as the rest of the department shows a steady progress. It may perhaps be attributed to the occupations of the people, this part of the country being exclusively agricultural.

There are altogether in the *department* 309 communal and 40 private schools. This gives a total increase of 8 schools over the year 1848. But there have been at the same time an increase of communal and a decrease of private schools. This result is doubly advantageous; for, with few exceptions, the public schools are superior to the private schools, both as regards instruction and discipline.

With respect to the *mode of instruction*, the 349 boys' schools are thus divided:—Schools directed according to the mutual mode, 12; simultaneous, 261; individual, 21; mixed* mode, 55; total, 349. This last mode is the best that can be employed in the schools which have more than 50 pupils; it demands, on the part of the master, indefatigable zeal, but it gives, in exchange, most beneficial results.

There are 314 schools exclusively devoted to Roman Catholics, and 18 to Protestants, whilst 17 schools receive children belonging to both. The directors of these 17 schools are all Roman Catholics.

Civil State of the Teachers.—Of the 349 instructors 336 are laymen, and 13 belong to religious societies. There are also employed in the schools 49 assistant-brothers. Of the 336 lay teachers, 117 are bachelors, 196 are married, and 23 are widowers.

Number of Pupils, &c.—The communal schools receive 11,882 boys; the private schools, 1981; in all, 13,863. If to this number we add 217 boys who attend the *common schools,* we shall have a total of 14,080 boys, thus showing an increase of 807 over the year 1848.

Besides the 13,863 boys admitted into the 349 schools, there are also taught, by the masters of the common schools, 1234 girls.

Of the 14,080 boys, 7943 pay a school fee, which varies from five-pence to twenty-pence a month; 6137 are instructed gratuitously. The number of gratuitous pupils it is hoped will increase; for the 24th article of the law of the 13th March, 1850, states, that "*primary instruction ought to be given gratuitously to all the children of those families who are not in a condition to pay for such instruction.*"

Moral and Political Conduct of the Teachers.—The conduct of our instructors is generally very good. With some exceptions, happily few in number, they have all learned that they ought to confine themselves exclusively to the discharge of the duties belonging to their profession, and not to engage in political or municipal discussions.

We cannot speak so satisfactorily of the capacity of our teachers. Besides those who have been educated at the Normal School, and whose schools are of a superior order, there are a hundred instructors who were *breveted* immediately after the promulgation of the law of June 28th, 1833. These know, in general, very little; they are ignorant of good methods of teaching, and their schools are conducted with little order and regularity. But they have rendered services, and although they are not at the top of their profession, yet it would be unjust to hurry on their superannuation.† The law which assures to instructors a minimum salary of 600 francs (25*l.*), will enable us to demand of them more zeal and assiduity. They will not require to seek, in labours foreign to their profession, an increase of pay to assure the daily existence of themselves and their families. But 19-20ths of the instructors of this department will not be able to claim more than the fixed minimum allowance. It is to be regretted that we cannot, by means of salaries increasing progressively in proportion to the services performed, excite the emulation of teachers and establish a system of promotion advantageous to the cause of education.

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* This is a combination of the *mutual* and the *simultaneous.*

† By a recent law a retiring pension is granted to teachers in proportion to their length of service.

Girls' Schools.—There are in the department 54 communal and 163 private schoolmistresses. The increase on 1848 is 18 in number.

The communal schools receive 3669, and the private schools 5662 pupils; in all 9331. When compared with the numbers attending school in 1848, there is a decrease of 151 pupils. If we add to the above number 1234 girls who are taught in the common schools, we shall have a total number of 10,565 girls receiving elementary instruction.

Of the 9331 who are taught by schoolmistresses, 6674 pay, and 2657 are educated gratuitously.

Of the 1234 who attend the common schools,* 941 pay, and 293 receive gratuitous instruction.

The communal masters alone receive pupils who pay nothing; the private teachers receive none. All the schoolmistresses, on the contrary, whether communal or private, admit gratuitously a great number of children.

There is no need to direct your attention to the fact, that the zeal and the devotion of our schoolmistresses are not sufficiently recompensed. Every one is fully convinced of the salutary influence which the education of females exercises upon the morality of a country. We ought, therefore, to find some means of properly rewarding our schoolmistresses for the eminent services which they have rendered. It is necessary, above all, to encourage the establishment of girls' schools, in order to diminish, as much as possible, the number of *mixed schools*, which, in spite of the most careful superintendence, present results most unfavourable. As a proof of the low estimation in which these *mixed* schools are held, take the following facts:—In those *communes* which possess a *girls'* school, the mean number of pupils attending is sixty-four per *commune;* whereas in the communes having no girl's school, but, on the contrary, a *boys'* school open to girls, the mean number is reduced to nine.

There are 189 communes entirely without schoolmistresses, that is to say, in 189 communes of the department the girls are either wholly deprived of instruction, or receive an education which, from being given by a man, is not at all in harmony with the duties imposed upon the sex by society.

From these considerations, I have the honour of proposing to you to ask of the general council a sum of 2000 francs, to be appropriated thus: 1000 francs among private schoolmistresses, many of whom find it difficult to live, and 1000 francs to be divided among the poorest of the communes which shall make sacrifices to establish communal schools for girls.†

(*To be continued.*)

EXAMINATION FOR CERTIFICATES OF MERIT.

The Examination of *Masters* will be held on Monday, the 21st of April, at—

London.—In the St. James's National School, 45, Marshall Street,

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* These common or mixed schools are conducted by *masters*.

† Every commune is obliged by law to support at least one primary school, either of its own, or in conjunction with neighbouring communes.

Boys' Schools.—I have compared the results given t' , H.M. Inspector.
stated in the report for 1848. This comparison has ↑ Lane, by the Rev.
perceptible progress. There are 8 schools and 807
were in 1848. In only one of the arrondissement ne Rev. J. J. Blandford,
public schools have decreased; but this diminut
compensated by an increase in the numbers ol, by the Rev. F. Watkins,
This diminution is the more to be regretted.
shows a steady progress. It may perhap , the Rev. H. Longueville Jones,
of the people, this part of the country b

There are altogether in the *depar* held on the 21st of April, at—
schools. This gives a total increas ining School, King's Road, Chelsea, by
there have been at the same time *Inspector.*
private schools. This result is *the* National School, by the Rev. W. H.
tions, the public schools are *ctor.*
instruction and discipline. *St.* Paul's National School, by the Rev. H. W.

With respect to the *m* *ector.*
vided:—Schools direct Northgate Upper School, by the Rev. D. J.
261; individual, 21; *Inspector.*
that can be emplo *Schoolmistresses* in South Wales will be held at—
demands, on the National School, on the 28th of April, by the Rev.
change, most H.M. Inspector.

There are *of Teachers in North Wales, additional Examinations*
Protestant *the Rev. H. L. Jones,*—
rectors o *at* Caernarvon, in the National School, on the 2nd of
Civil
13 be
assis *For Mistresses,* at the same place, on the 9th of June.
rier

Intelligence.

TESTIMONIAL TO THE REV. R. DAWES, DEAN OF HEREFORD.—A public dinner was held, on Tuesday, March 11, at the George Hotel, Winchester, for the purpose of presenting a testimonial to the Very Rev. Richard Dawes, Dean of Hereford, in acknowledgment of his services in the cause of education.

Among the company present were the Hon. and Rev. Samuel Best, Chairman, the Very Rev. the Dean of Winchester, the Very Rev. the Dean of Hereford, Sir John Barker Mill, Bart., the Hon. A. Arundell, R. W. Lingen, Esq., Secretary of the Committee of Council on Education, and many other clergymen and gentlemen of the diocese.

BATTERSEA.—The Rev. Samuel Clarke, late Vice-Principal of St. Mark's, is appointed Principal of Battersea Training College.

To Correspondents.

A COUNTRY SCHOOLMASTER asks for any suggestions that will assist him in making a seraphine; as to the best kind of metal and wood, and the method of tuning.

G. B.—We fear your suggestion would take us out of our beat, but we will consider it.

J. B. B.—There is no work on the subject that we can recommend.

A. S. K. Will find his question answered in Walker's Dictionary.

A. M.—Postponed for the present.

ON LATIN ETYMOLOGY.

No. IX.

re abundant source of error in etymology, than the roots wholly independent often assume a common in language has a considerable number of words solete verb *ver-*, " pour," which must be carefully om the progeny of the verb *ver-*, " turn." In our last rew attention to one of those derivatives, namely, *verg-* as distinguished from *verg-*, " turn," " incline." Servius in his on Virg. Æn. VI. 244; " Frontique invergit vina sacerdos," in- erprets the verb, *vergere*, as meaning *fundere;* though it is true, he seems also to imply a connection between *vergere*, so used, and the idea of turning the vessel (ut patera convertatur). Lucretius again (V. 1008), has " Ipsi sibi saepe venena vergebant." And to say nothing of Stat. Theb. VI. 211, we find in Liv. XLIV. 33, " Montes spem faciebant, quia nullos apertos evergerent rivos, occultos continere latices." Lastly, *divergium*, a " watershed," may be called in evidence, as well as the Italian *versare*, and French *verser*, " to pour." But it may be said, that in all the instances so far quoted, the idea of pouring may be secondary, as the inversion of a vessel necessarily leads to an effusion of the liquid contents. While we admit the force of this argument, we still adhere to the belief that a root *ver-*, " pour," is at the bottom of all the words we have given, and think our readers will go with us before we have finished. Even in such a phrase as, " Gallia vergit in Septentriones," it is doubtful, whether the translation may not be, Gallia *pours its waters* towards the North; for though the slope determines the course of the waters of a country, on the other hand, the course of those waters is the best evidence of the slope.

The neuter substantive *virus* (crude form *vir-es*) according to the theory we have repeatedly put forward, implies a previously existing verb in the form of *vir-*. We are not deterred from this view by the fact, that in the oblique cases we have forms that belong to the second declension, as the gen. *viri*, and ablative *viro*, in Lucretius; for here we have the not very uncommon occurrence of one declension being called upon to supply what is defective in another. The case of *volgus* is perfectly parallel. And indeed nouns of the second declension from verbs often co-existed with neuters in *es-*. Thus, by the side of *modus modi*, the Latin language must at one time have had a neuter *modes-* (*modus*, *moderis*); or, otherwise, we could not account for the appearance of the adjective *modestus*, and the verb *moderare*. Compare *scelus*, *scelestus*, *sceleratus*. So again, we find *glomus*, *-i*, and *glomus*, *-eris*. Then, as to meaning, we may pretty safely give to *virus* the idea of " sap," in general, for a restriction to noxious juices was certainly not original in the word, any more than in φαρμακον, *venenum*, and our own *poison;* the last of which has evidently come to us through the French, from the Latin *potion-*. But the idea of sap might well be denoted by a derivative from a verb signifying to " flow."

Now that we regard *virus* as a *vox media*, which may be applied to salubrious juices as well as to poisons, it seems highly probable that the verb *virere* meant only " to be full of sap," for the word in its original sense seems to be used almost exclusively of vegetation. Of course, *viridis* is a derivative from *virere*. The termination is rare, but still not far removed from that of *utilis*, *agilis* on the one hand (considering the convertibility of *l* and *d* in Latin), or from that of *rapidus*, *fervidus* on the other. A word for the idea of greenness would, in the nature of things, be borrowed from the vegetable kingdom, and the close connection between the greenness of vegetation and the flowing of the sap, is self-evident. We may observe too, that the representatives of *viridis* in the Romanic languages, as the Italian *verde*, French *vert*, &c., exhibit the very vowel which we commenced with claiming for our root, *ver-*, " flow." The several ideas of greenness, flowing of sap, and vegetation, together with the form of the root under consideration, all draw our attention to the little word *ver-*, " spring." But for the full explanation of this monosyllable, we must stop a while in order first to establish what mathematical writers sometimes call a lemma.

In our last paper, p. 110, we drew attention, in passing, to the abbreviation of Latin words in those cases where the formation of a derivative, or compound, would lead to a recurrence of the same syllable. What we said had no pretensions to novelty, so far as regards the principle. It was distinctly put forward, with not a few examples, in some papers privately printed and distributed at Cambridge some years ago. The abbreviation in question has probably been the result of some slight confusion in the minds of those who had not a clear view of the principle of formation. It is one that is still at work. Thus a letter in the " Times" newspaper, a few days back, was signed *Pimlicola*, meaning evidently, an inhabitant of Pimlico; so that the word should, in strictness, have been *Pimlico-cola*. So again, our Chemists talk of *Formic acid*, whereas the term, following the analysis of *Sulphuric acid*, should have been *Formicic acid*, *i. e.* the acid of ants, from *formica*, " an ant." The most familiar instance is our word *idolatry*, in Italian, *idolatria*; which is, of course, an abbreviation of the fuller form, *idolo-latria*, ειδωλο-λατρεια, " idol-worship." The corruption is of classical antiquity, and we will point out some of the leading instances, including those alluded to in our last paper. 1. From μονο- and ονυχ-, we ought to have had an adjective μονονυχ- (nom. μονονυξ) or μονονυχο- (nom. μονονυχος); but we find in the Greek writers, μωνυχο- and μωνυχ-. Hence came the name for a centaur in Juvenal, *Monychus*. 2. From αγαν and ανηρ should have been formed an adjective αγαν-ανωρ; but one of the two similar syllables being omitted, we have αγανωρ, or in the common dialect, αγηνωρ. In the same way, some treat ποιμανωρ, as an abbreviation of ποιμαν-ανωρ, as though the word contained in its first element the essential part of the verb, ποιμαινω. In this case however we prefer the derivation from the substantive πων, and an obsolete μανηρ, an older form of ανηρ. That ανηρ had, at one time, a prefixed digamma, we know on the authority of Dionysius. And an initial *w* has often supplanted its relative the liquid of the labials. Thus our own *man*, has changed its initial letter or a virtual *w*, in the phrases *no one*, and *one says*,* which respectively represent the German *nie-mand*, and *man sagt*. Thus we regard *Fαν-ερ-*, as having in its first syllable the same root as our own *man*, and in the second part an unimportant suffix. The Greek *ποι-μεν-*, literally, "sheep-man," or "cattle-man," likewise contains the same root, *man*. And the claim of *ανερ-* to an initial *μ*, is confirmed by the proper name, *Anaxi-mander*, compared with *Alex-ander*. 3. The Latin *nutrix* would seem to be a corruption of *nutri-trix* from *nutrire*; unless, indeed, the verb *nutrire* be itself formed from the noun. In either case, there will be a difficulty left for the etymologist, for *nutrix*, if formed from *nu-ere*, would signify "a female who habitually nods," and so express a character very ill-suited for the office of a nurse. On the other hand, if *nutrire* be the parent of *nutrix*, we still have an arduous problem in the explanation of the verb. 4. The so-called passive infinitives, in their archaic form, *amarier*, *monerier*, *audirier*, are evidently deduced from the active infinitives, *amare*, *monere*, *audire*, by the addition of a suffix, not unlike that which distinguishes *amatur* and *amantur* from the active *amat* and *amant*. On the same principle, we ought to have had *regerier* from *regere*. This form, however, gives us the syllable, *ĕr*, repeated and separated by nothing more than the very faint sound of the interposing *i*. It was therefore natural, that one of the recurring syllables should be suppressed, and so we have the actual infinitive, *regier*. 5. *Salut-* (nom. *salus*), bears some analogy in its termination to *juven-tut-*, *senec-tut-*, *servi-tut-*, which three are formed by the addition of a common suffix to the several nouns, *juveni-*, *senec-*, *servo-*. If we regard *salut-*, as a compression of a fuller form, *salu-tut-*, it is legitimately derived from the adjective *salvo-* (nom: *salvus*). 6. *Stīpendium*, as we before observed, is the word *stĭp-ĭ-pendium* reduced, so that the length of the first vowel is accounted for; and a derivation from the noun *stips*, and the verb *pendere*, is in meaning satisfactory. 7. *Quini*, and we may add, *quindecim*, seem to be respectively representatives of fuller words, *quinquini*, or *quinqueni*, and *quinquendecim*. The Greek *πεντα* has a final vowel in common with *ἑπτα*, *εννεα*, and *δεκα*. The forms *ἑξα-κοντα* and *sexa-ginta* are securities for the existence at one time of a simple numeral *ἑξα*. Thus it is no very bold step to assume that *quinque*, in an old stage of the Latin language, ended like *septem*, *novem*, and *decem*; and thus we arrive at a theoretic *quinquendecim*, to agree with *septendecim*. But the syllables *quin* and *quen* were too similar, and too near to maintain their ground together. The form, *quinqueni*, would agree with those of *septeni* and *noveni*; or on the other hand, the analogy of *bini* (for *duini*), would suggest a full form *quinquini*. In either case, we arrive at a word which would inevitably be compressed into *quini*. Of course, on the same principle, we regard *quingenti* as an abbreviation of *quinquingenti*, which would correspond exactly with *septingenti*, *octingenti*. 8. The four verbs, *verto*, *viso*, *verro*, *vello*, stand almost alone, as having in the third persons of the simple present and perfect tenses, forms perfectly identical, *vertit*,

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* In the French *on dit* it is now an admitted fact, that *on* represents an older *hom*, *i. e.* man.

visit, *verrit*, *vellit*. Such a state of things is not likely to have been original; and as we know that in the older language the formation of perfects by reduplication was very common, especially in the third conjugation, we would suggest that *veverti*, *vevisi*, *veverri*, *vevelli*, were the earlier perfects, afterwards reduced in agreement with the usual abbreviation to the existing forms. 9. The substantive *mōs*, *mōris*, by its gender and ending, reminds us of a numerous class of nouns, such as *amos* (afterwards *amor*), *amoris*; *odos*, *odoris*; *honos*, *honoris*. These nouns, where traceable, always bring us to verbs. But the difficulty in the case of *mos* is, that the removal of the supposed suffix leaves nothing but the consonant *m*. The word has therefore probably suffered from compression. Again, the French representative of the Latin noun, we mean *mœurs*, seems also by its diphthongal form to justify the same theory. We also rely somewhat on the fact, that the French *sœur* is indisputably an abbreviation of the Latin *sor-or*. Thus we ask whether the noun, *mores*, "manners," be not an abbreviation in like manner of an older word, *mor-ores*, in which the first *o* may have been short. Such a syllable, *mŏr*, is visible in the substantive *mŏr-a*. This substantive has a suffix in common with *fug-a*, *tog-a*, *mol-a*, *plic-a*, and so directs us to search for a verb. We are baffled at first because the liquid *r* in our root happens to have superseded the liquid *n*. In fact, *mora* of the Latin is no other than the representative of the Greek *μονη*, "staying," "tarrying." But we do not mean that the Latin word is borrowed from the Greek. In fact, while it is clear that *μονη** is from the Greek verb *μεν-* (*μενω*), so the Latin *mora* is immediately related to *man-* of *maneo*. The perfect and supine *man-si man-sum*, together with derivatives, such as *man-sion-*, tell us that the Latin language once possessed a root *man-* of the third conjugation. But although the connection in meaning between *mora* and *maneo* is self-evident, it remains to account for the connection in meaning between *mores*, "manners," and *manere*, if the two words be really related. We hold them to be so related, and are prepared to assert generally that words signifying *custom* are deduced from verbs signifying *permanence*, like *manere*. Thus the Greek *εθ-ω*, "I am accustomed;" *εθ ος*, "custom;" *ηθος*, "a seat," "a custom," are immediately related to *ἑζομαι*, *ἑδ-ρα*, &c. The Latin *soleo*, "I am wont," and *solium*, "a seat," and *ob-solere*, "to be superseded," are other examples of the same principle. The Germans again have *sitte*, "a custom," alongside of *sitzen*, "to sit." Our own word, *custom*, which has come to us through the French *coutume*, or Norman *costume*, is but a corruption of the Latin *consuetud-on-* (nom. *consuetudo*), and so brings us to the verb *suesco suetus*, which we believe to be intimately connected with *sedeo*. Again, our substantive *wont* is of Saxon origin, and so akin to the German *wohn-en*, "to reside;" and indeed this very verb *wohn-en-* is the German equivalent for the Latin *man-ere*, Greek *μεν-ειν*, being only another instance of the substitution already mentioned of a *w* for an *m*. Lastly, our substantive *manner*, which we owe to the French *manière*, is in Italian *maniera*, and so comes ultimately from the Latin *manere*. Nay, to keep up the connection with the idea of a *seat* to the last, we also owe our term *manor*, as in " lord of the manor," to the same source ; for *manoir* in French is a noble residence, and the Italian, *maniére* or *maniéro* is the country seat or *manor* of a nobleman : while even the French *maison*, like our own *mansion*, is the exact equivalent in form of the Latin *mansion-*. The Latin word, in all probability, first acquired this usage as a building at a late period in the sense of an hotel where travellers could put up or *stop* for the night. From all this we conclude with some confidence that *mōs mōris* is an abbreviation of *mŏr-ōs mŏr-ōris*, and that this disyllabic substantive is from *man*, the base of *manere*. 10. That syllables like *os* and *or* on a Roman ear produced almost the same effect, we are entitled to assume from the readiness with which they exchanged them ; hence we must not be surprised that in forming a passive first person plural from *amamus*, instead of giving us the full form *amamus-ur*, which the analogy of *amat* and *amatur* would have suggested, they actually give us only *amamur*. Perhaps, indeed, *amamus-ur* may have passed through the form of *amamur-ur*, according to the usual change of *s* between vowels into *r*, and then the reduction to *amamur* will be a distinct example of our principle. 11. We shall not repeat what we said in our last paper of *vāro-*, "crooked," being a compression of *ver-ero-*, from the root *ver-*, "turn ;" but will at once proceed to (12) the adjective *ver-o-*, " true." Of the verb *esse*, " to be," *es* is now universally admitted to be the essential element. We believe there was a time when this little verb had an initial digamma ; in other words, we believe that the German *wes-en*, " existence," contains the root in its full form, and that our past tense, *was*, owes its change of vowel solely to its being a perfect, much as we have *ate*, *drank*, *sank*, beside the presents, *eat*, *drink*, *sink*. The Gothic *vis-an*, " to be," virtually contains the same initial letter ; and even the Latin words *col-uis-ti*, *ama-vis-ti*, in their middle syllables, have retained the root in its fuller form ; for, we contend, that all the perfect tenses of the Latin active as well as of the Latin passive, contain a representative of the verb " to be." But if *ves-* be the ultimate root of the Latin verb *esse*, by the addition of the familiar adjectival suffix *ero-*, we deduce from it an adjective *vĕr-ĕrŏ-*, " real," " actual," " existing," which would of course be compressed to *vēro-*. The Greek adjectives of like meaning, *ετ-υμο-*, *ετ-εο-*, are commonly, and we believe justly, referred to the verb *ειμι*. We claim the *τ* as belonging to the root and serving as the representative of the *σ* in *εσ-*. Nay, as a *t* in the classical languages always suggests a *th* in our own tongue, we think it not unlikely that our word *thing* * is a corruption of *eth-ing*, and so denotes the same as *be-ing*. 13. With this long preamble we now propose the root *ver-*, " spring," for examination. Neuters in *ĕr* are common, but *ver-* has a long vowel. No doubt then the word is contracted, as indeed the Greek form *Fε-αρ* sufficiently proves. Between the vowels of the Greek noun some consonant has probably vanished. Now the form *μουσα-ων* corresponds to the Latin *musarum.* Precisely in the same relation to each other stand the Latin *generis* and Greek *γενεος*. We therefore are disposed to ask ourselves whether the Greek *Fε-αρ* does not correspond to an archaic *ver-er* of the Latin. This neuter noun would correspond in suffix to such words as *it-er* and *tub-er;* and we know no better way of defining the spring * season than by calling it the time when the sap flows. The Italian is specially conversant with the vine, and there is no plant in which the flowing of the sap at this season is more marked, as vine-dressers well know.

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* A Greek *ν* often corresponds to a Latin *r*. Thus the Greek comparative ends in *ιον*, the Latin in *ior*.

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* In a former paper we postponed the explanation of the substantive *re-*, "a thing." This, also, we deduce from the root *ves-*, " be," by the addition of a suffix *ē*, such as is seen in *faci-e-*, *speci-e-*, *fid-e-*. We should thus arrive at *ves-e-*, or rather *ver-e-* ; and this we believe to have been contracted into *vre-* and so to *re-* on the principle which was examined at length in the January number. The Icelandic in like manner from the very same root, has a sb. with the same gender, *vera*, " being," " essence."

We now return to our root *ver-* or *vir-*, "pour." The noun, *virgon-*†, has a suffix that is known only as attached to verbs. Examples are *prurigon-*, *origon-*. Now as *viridis*‡ *senectus* means an old age full of sap, so *virgo* might have signified "the spring-time of life," "youth;" and it is no very great leap from the abstract to the concrete idea of youth. Indeed, the very word *youth* in our own tongue is used in both senses. Still we hesitate a little from a recollection of the fuller form, *virago.* Yet even this, like *vorago,* would be explained by the existence of a secondary verb of the first conjugation.

The substantive, *vĕr-ĕtrum* (the quantity is fixed by Phædrus IV. 14), has a termination which denotes commonly an instrument, and is attached to verbs. It probably meant originally "a tap or cock of a barrel," whence its subsequent meaning is readily explained; and this new meaning will also account for the word having gone out of use in its primitive sense. As for the middle connecting vowel, an *ĕ* was, as usual, preferred to an *ĭ* before two consonants. Compare in this respect *meretrix*, *genetrix*. If we are right in this derivation of *veretrum,* we may perhaps also include *vespa.*

In dealing with the root *ver-*, "turn," we drew attention to those forms in which the digamma disappears, as *eruca,* "a caterpillar;" and at the same time we noticed that this disappearance was at times in part compensated by a preference given to the vowel *u,* as in *urica,*" a caterpillar." This will prepare us for the assertion that *urna,* "a water-pitcher," for such is its distinct meaning, contains in its first syllable our root *ver-*, "pour." *Urina* is another word we claim, holding that in itself it expresses nothing but the idea of "water." The substantive *rapina,* also from a verb, has the same suffix. The verb *urina-ri,* "to dive," brings us to the same element; but it is not very easy to explain the form of the verb or to deduce from that form the peculiar meaning it has obtained. Perhaps there was originally a feminine adjective *urina,* "of the water," and with *avi-*, "understood,"§ applied to water-fowl, especially the duck or diver. Then the middle or reflective form, *urinari*, would naturally signify "to play the part of a waterfowl," "to duck or dive." Compare *Græcari*, "to play the Greek," &c. It may also be useful to keep in view the connection between *mergere*, the verb "to duck," and *mergus*, the "diver."

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* Is it accidental that the word *spring* is at once applicable to the season and to a fountain?

† Is it accidental that one of the streams conveyed by aqueducts to Rome was called *virgo?*

‡ The translation, a green old age, though now familiar to our ears, has got among us solely from a too literal translation of the Latin.

§ An instance of an adjective with *avi-*, understood, and used as a substantive, is seen in *altili-*.

That we have not been over-bold in our assumption of a fundamental verb, *ver-*, "pour," is further shown by the fact that the kindred tongues possess its representatives. In the Greek for example we find our verb, much modified indeed in form, but still obeying the laws of letterchange with all strictness. In No. VI. of our papers, p. 5, we asserted that the Greek verb *ρε-*, "flow," has suffered from the same change as the other words discussed in that paper. It was because we deemed it imprudent then to assume the existence of our Latin verb, that we thought it right to postpone the examination of the little Greek verb. There is now nothing to prevent the statement that the Latin *ver-*, "pour," and the Greek *ρε-*, "flow," are equivalents of each other. It should also be stated that the Sanscrit *vari-*, "water," is identical with our root. But we must go much further. It has already been more than once affirmed in this paper that an initial *w* and *m* are readily convertible. Thus we arrive at *mari-*, "the sea," as an equivalent for the Sanscrit *vari-*, "water."* That the root of *mari-* should not be limited to "salt water," is proved by the use of *meer*, *morass*, *marsh*, in our own tongue. Nay, the Latin also has the same root in the verb *merg-o*.

CLAUDIUS.

ON THE PERVERSION AND CORRUPTION OF WORDS.

(*Continued from p.* 75.)

IGNORANCE, because it has no clue, and passion, because it has no patience, use, as synonyms, words which are not truly synonymous. This is one of the great perils of language; ignorance, fancying that, with a new epithet, it must necessarily have a new idea, and knowledge, wilfully shutting its eyes, as the bull is said to do when it means mischief. The use of a limited number of real equivalents gives variety, and the opportunity of choice may contribute greatly to harmony; this is the only way in which synonyms can be properly said to enrich language. If any one should say that we are too fastidious, and that language, as it is ordinarily used, is quite sufficient for all practical and necessary purposes; we must answer, that the word necessary, as it often is elsewhere, is very ambiguous here. You may mass and compound all the savours of the same genus which nature has discriminated, and say of the mixture, that it is sweet or sour, salt or bitter, nauseous or edible, and that this is all that is necessary. You may blend all colours, and with the dingy result a clever sketcher may possibily give you an outline worth all the ill-judged tinting and shading of an inferior artist, and yet no rational man would speak of the variety of hues and of flavours, as superfluous; nor is it otherwise with the finer distinctions of thought, as they may be displayed in a well grown and well proportioned language. There is far too much disposition to submit to popular usage in matters of diction. The works of writers, who should know better are full of such sentences as these: "The best is to take words as they are commonly spoken and meant, like coin as it most currently passes, without raising scruples upon the weight of the alloy, unless the cheat or the defect be gross and evident." (Temple on Poetry.) So, the adage "loquendum ut vulgus, sentiendum ut sapientes," a thing impossible except with very considerable reservation. The great Lord Falkland, when he wanted to make any of his writings very perspicuous, is said to have consulted one of his lady's chambermaids, ("not the waiting woman, because it was possible she might be conversant in romances,") and to have been guided by her judgment as to what expressions he should retain, and what reject—a method which we cannot altogether commend, though offered to our notice by a very high authority. But in very recent writers we have often observed remarks of the same leaning, as, that the common sense of words is the true sense, and much to the same effect.

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* This doctrine, which has the sanction of Bopp, has been recently controverted by an able scholar, Dr. George Curtius, in the new *Zeitschrift für Vergleichende Sprachforschung*, p. 33. But our respect for Dr. Curtius will not induce us to acquiesce in his theory that *mare* is from the Greek verb *μαραινω*, and signifies strictly "a waste, ' "the unfruitful one."

It must be seen how much times and circumstances ought to modify such expressions as these. What might be said with some excuse when the literary class was a distinct* one, and when almost every recognized writer was at least a Latin scholar, can be no rule now, when even the knowledge of two of the languages on which our own is founded, is decried and disparaged; when the "Scribimus indocti, doctique," so widely prevails, and when, from the facilities of printing, absurdities, which would once have been merely oral, and so after a while might have passed away, are able to take upon themselves an enduring form.

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* "When speaking of the corruption of the tongue in Constantinople by the concourse of traders and strangers, Philelphus informs us, that the people belonging to the court still retained 'the ancient dignity and elegance of speech, and above all the women of quality, who, as they were wholly precluded from strangers, still preserved that genuine and pure speech of the ancient Greeks uncorrupted.'"—*Harris's Philological Enquiries.*

We are not to suppose that the usus of Horace exactly corresponds with what we should now term popular usage. Horace unquestionably meant the usus of an educated class. 'If,' says Hallam, 'the more elegant language of the Romans, since such we must suppose to have been copied by Terence for his higher characters, differed much in ordinary discourse from their orthography, it is probable that the vulgar went into much greater deviations. * * * * In the purest ages of Latinity, the *citizens* of Rome itself made use of many terms which we deem barbarous, and of many idioms which we should reject as modern. * * * * We cannot indeed ascertain in what degree the vulgar Latin differed from that of Cicero and Seneca.'"—*Middle Ages, Vol.* 3, *chap.* 9.

Now we have in England a medium class, below the educated, but superior to the mechanics, &c., of Rome. This class can express itself—often with force—and will express itself too, yet is of no real authority in matters of diction—for the final appeal after all in questions of diction is to etymology, of which the class referred to has no knowledge, for the self-educated have as strong an objection to the pedigree of words as the self-elevated have to the pedigree of persons.

By this means we are deprived of one test of the value of words,—namely, permanence*.

If language, under its former guardianship, lost, in many cases, its accuracy of application, the danger that it should do so now is infinitely greater. When we consider this danger, it is difficult to conceive how men, who have themselves received to a certain extent a classical education, can join in the outcry against what are called the learned languages. Yet some of our cleverest humourists—not perhaps without a tincture of envy—who have, or fancy they have a grudge, against scholars as a separate class, seem to consider themselves bound to keep up the foolish feud between wit and learning. Such men do themselves little credit by their hostility. The humourists of a former day were content to lash pedants, bookworms, and recluses, but they had too much sense to ridicule the study of Greek and Latin in the abstract. Imagine, if you can, Butler, or Dryden, or Swift, or Pope, or Gay, making a mock at scholarship. Perhaps, in this respect, their example might not be unworthy of the notice even of a Dickens. But whatever the opinion of popular writers, utilitarian,† or humourous, may be, it is pre-eminently the duty of all who are worthy to be called critics in the present day, to keep a strict watch upon the language, apart from the other qualities of books upon which they sit in judgment; to check the wanton introduction of foreign idioms,‡ the inroad of provincialisms, and all ignorant and absurd usages of words. If one of the first-rate periodicals would make a few severe examples every season, the real service they would render to the cause of letters would be quite inestimable, but alas! of some of the critics we may say truly, Quis custodiet ipsos custodes? §

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* Coleridge notices this in a passage rather more cautious than that of Guizot referred to in our first paper on this subject:—

"I would not lose any opportunity of impressing on the mind of my youthful readers the important truth, that language, as the embodied and articulated spirit of the race, as the growth and emanation of a people, and not the work of any individual act, or will, is often inadequate, sometimes deficient, but never false or delusive. We have only to master the true origin, and original import of any native, and *abiding* word, to find in it, if not the solution of the facts expressed in it, yet a finger-mark pointing to the road in which this solution is to be sought." (Notes to "Aids to Reflection.")

Many of the words noticed in our former numbers, especially such as have been enlisted in the service of excited feeling, prove that mere continuance is a very imperfect test of the justifiableness of current usage; where there has been no strong interference of passion in their favour, many words once fashionable have been dismissed as improper or superfluous: of this numerous instances might be given: so far Time has been a test.

† Science, to whom Madam Utility professes herself much devoted, insists upon using, as her interpreters, those two ancient and learned ladies, Greek and Latin. Madam Utility, who is conscious of backbiting dreadfully the two blue-stockings, bridles up a little, but is obliged to submit to the introduction. Altogether, the position is an amusing one.

‡ An accurate philologist, and observer of our national diction recently noticed to us, that several foreign idioms were becoming nationalized in consequence of the translations, necessarily rapid, made for our newspapers, from foreign journals, thus gradually affecting the style of the writers.

§ We are glad to find a well-read critic, in the last *Edinburgh Review* but one, with the vulgar; this is a precept specious enough, but not always practicable. Difference of thoughts will produce difference of language. He that thinks with more extent than another will want words of larger meaning; he that thinks with more subtlety will seek for terms of more nice discrimination; and where is the wonder, since words are but the images of things, that he who never knew the original should not know the copies? * * * * * That the vulgar express their thoughts clearly is far from true; and what perspicuity can be found in them proceeds, not from the easiness of their language, but from the shallowness of their thoughts. He that sees a building as a common spectator contents himself with relating that it is great or little, mean or splendid, lofty or low; all these words are intelligible and common, but they convey no distinct or limited ideas. If he attempts, without the terms of architecture, to delineate the parts, or enumerate the ornaments, his narration at once becomes unintelligible."—*Johnson, "Idler," No.* 70.

From these three extracts the reader may make a very fair estimate of the merits, the liabilities, and the defects of popular diction.

Some words are injured by an over-usage, which seems mainly to depend on fashion or caprice. It is the general fate of favourites to be spoilt, and this is the case especially with those words which Ben Jonson called "the scented terms of the time." These being plied in season and out of season,—as natural poverty of diction is glad of the aid and authority of fashion,—gradually lose their precision of sense, which they often recover but imperfectly when the fashion has gone by. We do not, however, assert that no account whatever can be given of the popularity of such expressions: the hacknied "splendid," "tremendous," and less refined "stunning," may be the natural productions of an age like our own, prolific in discovery and wonder.

It is, on the whole, extraordinary how soon language has purified itself from the effects of any merely temporary influence. How litte is left, for instance, comparatively speaking, of the pious slang of the Roundheads or the profane slang of the Cavaliers. The fact is, that when any particular class of opinions have existed in excess long enough to produce nausea and reaction, the very words which have been party favourites have been afterwards cast forth as abominations; less, perhaps, from a feeling of their frequent impropriety and untruth, than of their wearisomeness. Where the excitement and extravagance have not been such as to be followed by this sensation of disgust, the traces left in language have been much more lasting. Thus the French influence, chiefly active in the time of Pope and Young, commencing earlier, has been far more abiding in its effect than either of the political and religious causes referred to above; for in the party terms referred to there was no sense of increased knowledge nor much actual novelty, and the opinions which they embodied or exhibited were, in their excess at least, transient. Of Gallicisms there may have been "a wasteful and ridiculous excess" at first; but many that were retained were useful, and really enriched the language: we mean simply the words, for the phrases (with which we have not here to do), both from the classics and French, are much more questionable in their effect, being more intimately connected, in one sense, than single words with the genius and circumstances of the nations with whom they originate, and to whom, consequently, they are more appropriate, than to those who merely adopt them at second-hand.

THE PUBLISHERS AND THE IRISH NATIONAL EDUCATION COMMISSIONERS.

Messrs. Longman and Mr. Murray have recently published a correspondence with Lord John Russell on the subject of "The Publication of School Books by Government at the Public Expense." They state, that

> "Government has established a manufactory of school books in Ireland. These books, produced by irresponsible parties, at the public expense, have not only the patronage of the Commissioners of Education in Ireland, but are now largely introduced into England. Such proceedings are obviously inconsistent with all sound principle; and, while they are subversive of the rights, and injurious to the interests, of private persons engaged in the composition and publication of school books, they are not less injurious to the scholars and the public."

They urge the consideration of the subject upon his Lordship, because the government undersells the booksellers, not by producing the books at a lower first cost, but by selling them at less than cost price and paying the difference out of the public purse; because it is inconsistent with free trade, and unjust to tax the publisher and to employ the taxes to which he contributes to undersell him. That the fact of their being published by the Government virtually creates a monopoly, against which it is useless for private enterprise to struggle.

As a principle, we are ready to admit that such matters as these are always best left to private enterprise, and that Government seldom takes them in hand without some mismanagement; but to look at the question fairly we must go back to the year 1833, when the system of National Education was established in Ireland, and call to mind the difficulties which the Board had to encounter before they could hope to establish a system which should be accepted and supported by the priests and the clergy. Not the least difficulty was the agreement upon a series of books; and though we are speaking without any positive knowledge on this point, we are quite sure that it must have been a subject of most anxious deliberation to the Board. We are fully assured that there was not then, and is not to this day, any series of books that would have answered their requirements—cheapness, with a proper moral and religious tone,—without anything that could be objected to by the members of either church; and we are equally certain that they could not have made a selection from the books of all the publishers in the kingdom that they would have found altogether suitable. They adopted the only course which they could adopt—they published a series of elementary books of their own;* and we think they would have had an imperfect appreciation of their duty if they had allowed any narrow trade-notions to interfere with the task they had taken in hand—that of humanizing a nation.

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* The following extract from their rules shows the perfect fairness with which the Commissioners act in the matter:—

"The use of the books published by the Commissioners is not compulsory; but the titles of all other books which the conductors of schools intend for the ordinary school business are to be reported to the Commissioners, and none are to be used to which they object; but they prohibit such only as may appear to them to contain matter objectionable in itself, or objectionable for *common* instruction, as peculiarly belonging to some particular religious denomination."

So far from there being any prestige attached to them because they are issued by the commissioners, we know from our own experience that there has been a great *prejudice* against them. They have been suspected by the clergy, because they are the practical embodiment of that principle to which they so strongly object—secular and moral, without doctrinal teaching. This prejudice still exists even where they are used, and they have been adopted only because they are best suited to the wants of the National Schools. We ourselves have invariably recommended them for that purpose, though we acknowledge their deficiency. That the sale beyond Ireland is not very enormous is proved by the fact, that the total amount received from the sale in England, Scotland, Wales, and the colonies, in 1849, was 6955*l.* 5*s.* 6*d.*; and this sum included such books as were sold to schools in Ireland not in connection with the Board. The injury to individual publishers cannot therefore be very great, and ought not to be considered when it is set against a great public good.*

Having determined upon publishing a series of books, the Board then issued them to the National Schools, at a little more than half the cost price; and we think it was a justifiable economy, which gave books that cost 20*l.* for 11*l.*, rather than 50*l.* in money to buy such books as they chose.

Having published the series, it was very natural that the Board should not refuse to sell them to those who wished to buy, and who approved of the principle upon which they were prepared. But they did not then sell their books at the same price to the *public* as to their own schools: the "First Book of Lessons," which is charged to the schools a halfpenny, is sold to the public at twopence; and, according to the principle upon which they fix their prices, this costs them a penny; and therefore there is a penny to be divided between the public, the agents, and the Board; and so throughout the series.

The publishers state in their memorial that the books are sold to the public at less than the cost; now, as the above statement is drawn from the Commissioners' Report, we are prepared positively to say that they are not; and an examination of the books in their list, and a comparison with the standard libraries and popular libraries which meet us at every turn, prove to us that the prices which they charge actually leave a *profit*, and that it would be quite possible for any publisher to compete with them who chose to issue his books in a similar cheap style, more especially as the memorialists state that an individual can always produce an article more cheaply than Government. We do not think, therefore, that it is a case for Government interference; but we venture to suggest that the Commissioners might offer to public competition the right of sale to the public, reserving the right of circulation in their own schools as at present.

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* The expenditure for printing and binding books, in 1849, was 14,370*l.* 9*s.* 9*d.*; *for books bought of various publishers for circulation along with their own at a reduced price,* 4584*l.* 13*s.* 4*d.*; the amount received from the sales was 12,196*l.* 15*s.* 4*d.*; the cost therefore to the nation was 6758*l.* 7*s.* 9*d.*

METHODS OF GIVING LESSONS ON OBJECTS.

HEADS OF A LESSON ON A VEGETABLE SUBSTANCE.*—CORK—THE CORK-TREE.

1. Particulars regarding external appearance, qualities, &c.
2. Where it is found.
3. How the substance is obtained or prepared.
4. Uses to which it is applied.
5. History.

SPECIMENS OF NOTES ILLUSTRATIVE OF THESE HEADS.

1. (a) *The Tree.* Two varieties of the cork-tree—the narrow leaved and the broad leaved; attains the height of thirty feet; is an evergreen; has leaves of a bright colour; oval shape, and indented edge; tree much like common oak in form, but more beautiful; called *quercus suber; quercus* means an oak tree; *suber*, cork, or cork-tree.

(b) *Piece of Cork.* 1st. *The parts:*—has two ends, two surfaces, edges, &c. 2nd. *The qualities:*—light, porous, opaque, elastic, compressible, smooth, &c.

2. Found in S. parts of France; in Spain, but most abundant in Catalonia and Valencia; in Portugal; Italy; and Barbary, in Africa.

3. Cork is outer bark of tree; can be removed without injuring the tree; the best taken from old trees; that of young ones being too porous; taking off bark called peeling, done every ten years; if inner bark removed the tree would be destroyed; removed from tree by curved knife with two handles; slits are made from top to bottom, others across, then removed in large or small pieces; this depends on the number of incisions across. When taken off, soaked, and afterwards placed over a fire to char it; this blackens the surface and closes the pores; thinner layers not thus operated on, because charred cork apt to give bad flavour to liquors stopped with it.

4. Used for stopping bottles and casks, because compressible and elastic; bungs and large corks more porous than small corks; pores of the latter lie across; floats of fishing-nets often made of cork; life-preservers; insuring buoyancy of life-boats; pieces fastened together form buoys; put between soles of shoes to keep out moisture, is impervious to water; on account of its lightness is made into false legs; when burnt, obtain Spanish black; great quantities made from the cork parings.

5. Use of cork for stopping bottles introduced about 15th century; ancient Egyptians made coffins of it; principal exports from Valencia and Catalonia; duty on cork in a rough state 8*s*. per cwt.; price per cwt. from £20 to £70.

FORM OF QUESTIONS.

1. How many varieties are there of the cork-tree? State the difference between them. To what height does it attain? Describe the leaves. Explain what you mean by indented. What is the root of this word? What tree does the cork-tree resemble? The proper name of cork-tree. What does *quercus* mean? What do you mean by

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[*] For methods of giving these lessons, see p. 95 of Vol. for 1850.

porous?—elastic?—compressible? Mention other objects having these qualities.

2. Where is the cork-tree found? Show me France on the map. How does Spain lie from France? What are Catalonia and Valencia? Show Italy, Barbary, &c.

3. What is cork? What is the best obtained from? Why are old trees better than young ones? How often is the bark stripped off? What word means taking off? How is the bark obtained from the tree? Describe the whole operation. Why is the bark charred? What is an incision?

4. Why is cork used for stopping bottles? Why are small corks less porous than large ones? Mention other uses to which it is applied. Explain the words buoyancy and impervious. To what uses are cork parings applied?

5. Where does cork principally come from? What word means to *bring in?* What do you understand by *duty?* What is the duty on cork not manufactured? The value of cork per cwt.?

REMARKS.

The upper classes should be required to write an abstract of the lesson. In order to assist them in this exercise, the teacher should write on the black-board the *Heads of the Lesson*, numbering them as in the example given above. The children are not, however, to number their answers; but each answer is to be a consecutive account of the object that has been described. They should also be accustomed to give distinct answers to separate questions; when this is done, both the question and the answer should be numbered. The following are examples of such questions:—

1. Write the particulars concerning the external appearance of the cork-tree.
2. Mention all the qualities of cork, and clearly explain the meaning of each term.
3. Explain the mode of obtaining and preparing cork.
4. Enumerate the uses to which cork is applied.

W. M'L.

LESSON ON THE RIVERS OF EUROPE.

RIVERS OF EUROPE, WITH THE PRINCIPAL CITIES AND TOWNS SITUATED ON THEM.

The Rivers of Europe may be arranged into seven divisions: 1. Those that enter the Caspian Sea; 2. Those that enter the Black Sea; 3. Those that fall into the Mediterranean, including its bays and gulfs; 4. Those that are emptied into the Atlantic Ocean; 5. Those that fall into the Baltic Sea; 6. Those that enter the White Sea; and 7. Those that enter the Arctic Ocean.

Rivers entering the Caspian.

1. The OURAL River has its source in the Ural Mountains, forms the boundary between Asia and Europe, and enters the Caspian Sea on its northern side.

2. The **Volga** issues from a small lake in the chain of the Valdai, and empties itself by about 70 outlets into the Caspian Sea. It is the largest river in Europe, and has a length of more than 2000 miles. Its basin is 482,464 square miles. It is navigable throughout a great part of its course, and is the great highway of Central Russia. It abounds in fish; the principal of which are the carp and the sturgeon. The fisheries give employment to many thousand small vessels.

Astracan is built on an island formed by the branches of the Volga, near its entrance into the north end of the Caspian Sea. It is the fishing mart of the Volga, and isinglass forms one of its most important articles of trade. It is the centre of all the commerce of Russia with Persia and the East.

Rivers entering the Sea of Azof and Black Sea.

3. The **Don** issues from a lake in the government of Tula, and, after a course of nearly 1000 miles, enters the Sea of Azof by several mouths. It is not navigable for large vessels, on account of its being full of shallows. Like the Nile, it overflows its banks in the lower part of its course, and its waters carry down vast quantities of mud, by which a new soil is brought upon the fields every year.

4. The **Dnieper** has its source in the Alaunian Hills, and enters the Black Sea in the neighbourhood of Odessa, after a course of 1050 miles. The navigation of this river is greatly impeded by rocks and cataracts. It abounds in fish, such as the pike and the sturgeon.

Kherson, on the Dnieper, is a naval port with a fortress. Howard, the philanthropist, is buried in the vicinity of the town.

5. The **Dneister** has its source in the northern base of the Carpathian Mountains in Austria, takes a south-easterly direction, and, after a course of 480 miles, enters the Black Sea.

6. The **Danube** rises in the Black Forest, passes through Baden, Wirtemberg, Bavaria, Austria, and Turkey, and enters the Black Sea by several mouths. It is 1750 miles in length, and is navigable to Ulm, a distance of nearly 1600 miles from its mouth. It has a basin of 230,768 square miles. It receives more than 100 tributaries, the principal of which are the following:—

(a) The *Isar*, which passes through Bavaria.

(b) The *Inn* passes through the Tyrol and Bavaria, and forms, in part of its course, the boundary between Bavaria and Austria.

(c) The *Drave* rises in the Tyrol, flows through Styria and part of Hungary, and enters the Danube in Sclavonia. Its length is about 400 miles.

(d) The *Save* rises in the Corinthian Alps, flows between Styria and Illyria, then divides Sclavonia from Turkey, and enters the Danube near the town of Belgrade. It is 440 miles in length.

(e) The *Theiss* rises in Transylvania, passes through Hungary, and enters the Danube, near Belgrade, after a course of 740 miles.

Vienna is on the right bank of the Danube, at its confluence with the Vien. It is the largest city in Germany, and is well provided with scientific institutions and places of amusement. It is noted for its imperial library, which contains, besides some thousands of valuable manuscripts, upwards of 420,000 volumes. The arsenal contains arms sufficient for 30,000 men, besides artillery. Vienna is the principal manufacturing town in the empire. Silk, cotton, porcelain, gold and silver lace, hardware, &c., are the most important articles of manufacture. Vienna was besieged in 1683 by the Turks; the siege was raised by John Sobieski, King of Poland, who defeated the Turks with great slaughter under the walls of the city. The head of the Grand Vizier, Kara Mustapha, who commanded the Turks in this siege, is preserved among other Turkish trophies in the arsenal. It twice surrendered to the French—once in 1805, and again in 1809.

Ratisbon, in Bavaria, is situated on the right bank of the Danube. Among other fine buildings is the Town House, where the diet of the empire used to assemble. It has considerable trade in jewellery and goldsmith work.

Munich, the capital of Bavaria, on the Isar, is one of the finest cities in Germany. It contains many beautiful buildings, the most remarkable of which are the King's Palace, one of the largest in Europe, and the Picture Gallery, containing one of the finest collections of paintings in Europe.

Innspruck, on the Inn, is the capital of Tyrol. It is situated in a pleasant valley surrounded by lofty mountains, which are covered with snow, even in summer. It has some trade in cotton, silk and woollen stuffs, and all kinds of glass wares.

Buda, or *Ofen*, on the right bank of the Danube, is the capital of Hungary. It contains the arsenal, the Palatine's palace, and many splendid palaces. It is noted for its baths, which are abundantly supplied with hot springs of water strongly impregnated with sulphur. In the adjacent country are vineyards, which produce famous red wines. A suspension bridge connects Buda with *Pesth*, the finest town in the kingdom. Although a modern city, it contains a university, the most richly endowed in Europe, a library of 50,000 volumes, and many literary and scientific institutions. Pesth suffered considerably in the late civil war between the Austrians and the Magyars. It has manufactures of cotton, silk, leather, and musical instruments.

Belgrade, the capital of Servia, is on the right bank of the Danube, near the influx of the Save. It was formerly a town of considerable importance, being considered the bulwark of Turkey in the north, but it is now falling to decay.

Tokay, in Hungary, on the Theiss, is celebrated for its wine. In the vicinity are large salt-works.

Rivers entering the Mediterranean.

7. The Po, the most important of the Italian rivers, rises in Monte Viso, one of the Cottian Alps, on the confines of France and Italy. It passes almost due east, divides the possessions of Austria in Italy from Parma, Modena, and the States of the Church, and, after a course of 500 miles, enters the Adriatic Sea. The basin of this river has an area of about 40,000 sq. miles. This river is greatly elevated above the surrounding fields, and has a strong and rapid current, which renders it difficult of navigation. Immense dykes are built along its

banks, to prevent the inundation of the cities, towns, &c. that are built on it, as well as the territories through which it passes. The streets of Ferrara are 30 feet below the bed of the river.

Turin, the capital of the kingdom of Sardinia, is situated on the left bank of the Po, and is a beautiful and well-built city. The streets are wide, clean, and straight, and two of them are among the finest in Europe. From the number of literary and scientific institutions that it possesses, it takes the first rank among the cities of Italy.

8. The TIBER has its source in the Apennines, near the eastern border of Tuscany, takes a south-western direction, and enters the Mediterranean by two mouths below the city of Rome. Its length is about 150 miles.

W. M'L.

(*To be continued.*)

SPECIMENS OF PARSING AND PARAPHRASING.

No. XVIII.

THE following questions form section three of the paper on the "English Language," proposed at the recent general examination of Female Training Schools:—

Write a clear and simple paraphrase of the following passage. Give the rules in Syntax for the concord or government of the words in italics:—

He is the happy man, *whose* life e'en now
Shows *somewhat* of the happier life *to come;*
Who, doomed to an obscure but tranquil state,
Is pleased with it; and, *were he free* to choose,
Would make his fate his choice; *whom* peace, *the fruit*
Of virtue and whom virtue, fruit of faith,
Prepare for happiness, *bespeak* him one
Content indeed to sojourn *while he must*
Below the skies, but having there his home.
The world o'erlooks him in her busy search
Of objects more illustrious in her view;
And *occupied as earnestly as she,*
Though more sublimely, he o'erlooks the world.
She scorns his pleasures, for she knows them not;
He seeks not *hers,* for he has proved them vain.
He cannot skim the ground, like summer birds
Pursuing gilded flies, and *such* he deems
Her honours, her emoluments, her *joys*.
Therefore, in contemplation is his bliss,
Whose power is such that *whom* she lifts from earth
She makes *familiar* with a world unseen,
And shows him glories yet to be revealed.

PARAPHRASE.

The man that is truly happy is he whose life, even in this world, has some resemblance to the happier life beyond the grave; who regards without discontent, and even with positive satisfaction, the quiet though humble and obscure condition allotted to him here, and would, if he were allowed to choose, make that which is his destiny his choice; who, possessing peace as the effect of virtue, and virtue as the fruit of faith, is by such peace and virtue being trained and qualified for happiness, and shown to be one who is content, indeed, with the ordination that makes earth his temporary abode, but who regards heaven as his only home. The world, while she is busily intent on discovering the objects that in her estimation are illustrious, overlooks this humble man; while he, no less earnestly, but far more nobly occupied, overlooks the world. She scorns his enjoyments, because she understands them not; and he seeks not her pleasures, for he has proved them to be unsubstantial. Feeling the importance of his eternal existence, he cannot like a summer bird skim the ground in pursuit of glittering insects, for to these short-lived things he likens the honours, the rewards, and the enjoyments of the world. Therefore, his soul, withdrawn from the things that are "seen and temporal," seeks its happiness in spiritual contemplation, whose power is such, that they, whose thoughts she elevates above the earth, are by her made to realize familiarly a world unseen, and even now to behold glories that are not yet revealed.

SYNTACTICAL PARSING.

Whose life. The possessive case of a noun or pronoun, is governed by the name of the thing owned or possessed. *Rule* 4.*—The relative here is masculine.

Shows somewhat. The direct object of a transitive verb is in the objective case. *Rule* 7.

(*Which is*) *to come.* The infinitive mode may be governed by a verb, an adjective, or a noun. *Rule* 10.

Who is pleased. A personal verb agrees with its subject in number and person. *Rule* 2.

(*If*) *he were.* The conjunctions if, though, unless, provided, when expressive of uncertain supposition or contingency, are said to require a verb in the subjunctive mode. P. 128.

He free. An adjective relates to the noun or pronoun which it qualifies. *Rule* 3.

Prepare whom. The direct object of a transitive verb is in the objective case. *Rule* 7.

Peace, the fruit. When two nouns, or a noun and pronoun, occur in apposition, the one serving to identify or explain the other, they are in the same case. *Rule* 14.

Fruit of virtue. A preposition relates its antecedent to its object or consequent. *Rule* 5.

Of virtue. The object of a preposition is expressed in the objective case. *Rule* 6.

Peace and virtue prepare. A personal verb agrees with its subject in number and person. *Rule* 2.

Peace and virtue bespeak. Same *Rule.*

To sojourn while† *he must* (*sojourn*). Conjunctions combine two or more words or sentences. *Rule* 9.

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* The rules are quoted from Hunter's *Text-Book of English Grammar.*

† *While* is an adverbial conjunction, modifying both *to sojourn* and *must sojourn.*

Must (*sojourn*). The infinitive mode, omitting its sign, may form a compound verb with one of the auxiliaries—may, can, shall, will, must, and do. *Rule* 11.

He (*being*) *occupied.* An adjective relates to the noun or pronoun, which it qualifies. *Rule* 3.

Earnestly occupied. An adverb relates to the verb, adjective, or adverb, which it modifies. *Rule* 8.

As earnestly. Same *Rule.*

Occupied as she (*is occupied*). Conjunctions combine two or more words or sentences. *Rule* 9.

Seeks hers. The direct object of a transitive verb is in the objective case. *Rule* 7.

Birds pursuing. An adjective relates to the noun or pronoun which it qualifies. *Rule* 3.

Honours such. Same *Rule;* or, if *such* is considered pronominal, apply the Rule of Apposition.

Deems joys. The direct object of a transitive verb is in the objective case. *Rule* 7.

Whose power. The possessive case of a noun or pronoun is governed by the name of the thing owned or possessed. *Rule* 4.—The relative here is feminine.

Lifts whom. The direct object of a transitive verb is in the objective case. *Rule* 7.—The correlative of *whom* is *them* understood.

Them familiar. An adjective relates to the noun or pronoun which it qualifies. *Rule* 3.

GEOGRAPHY OF PALESTINE.

No. VIII.

(*Continued from p.* 278.)

The tribe of Judah was exalted above every other by the circumstance that "our Lord sprang out of Judah," a distinction to which the father of the tribes perhaps referred, when he said, "Judah, thou art he whom thy brethren shall praise." The word Judah itself signifies *praise*. This tribe had other features of national importance besides the honour of being ordained to send forth the great Captain of man's salvation. It was the most numerous and powerful; it was regarded as the head of the nation, after the captivity had obliterated the distinction of two Jewish kingdoms, and political power was yet lingering in its possession when the birth of Messiah was near at hand, and these words of Jacob were about to be fulfilled—"The sceptre shall not depart from Judah, nor a lawgiver from between his feet, until Shiloh come."

The territory allotted to Judah was a large south-eastern portion of Palestine, partly bounded on the east by the whole western shore of the Dead Sea. A considerable extent of it is called in the New Testament the hill country of Judea—the name Judea being applicable to the territories of Dan, Simeon, and Benjamin, included with that of Judah.

The principal towns of this tribe were Kadesh-barnea, Maon, Engedi, Hebron, Tekoa, and Bethlehem.

Kadesh was at the south-eastern extremity of Palestine, bordering on Edom. Here the Israelites encamped, with the intention of entering the Promised Land, should the spies who had been sent forth return with a favourable report of the land. Their account, however, excited unwarrantable murmurings among the people, and the Almighty "swore in his wrath that they should not enter into his rest." Nearly forty years afterwards, when the generation that had come out of Egypt was almost utterly cut off, the Hebrews returned to Kadesh, and attempted to enter into the possession of their inheritance; but the king of Edom would not allow them a passage through his dominions, and they were compelled to take a more circuitous route.

Near the centre of Judah's territory was Maon, which gave name to a neighbouring wilderness, where David resided for some time when afraid of the enmity of Saul. At a place called Carmel, near Maon, were the possessions of Nabal, whose churlishness towards David excited the indignation of the latter, and whose life, thereby endangered, was spared at the intercession of Abigail.

Nearly eastward from Maon, among the wild hills skirting the west of the Dead Sea, was Engedi, which also gave name to a part of the desert where David sought refuge from the hand of his great persecutor, and where, by cutting off the skirt of Saul's robe, he demonstrated the opportunity he might have taken of avenging himself, and the magnanimity which sought to "overcome evil with good."

The most important town in Judah, and now one of the most ancient in existence, was Hebron, about twenty miles south of Jerusalem, called also Kirjath-arba, that is, the city of Arba, the father of Anak, from whom the famous Anakim were descended. It also bore the name of Mamre, the Amorite who was confederate with Abraham. It was to the plain of Mamre that Abraham came to dwell, when he parted with Lot; and here, too, the patriarchs Isaac and Jacob frequently sojourned. When the land of Canaan was visited with that famine from which so many circumstances of peculiarity and importance in the fortunes of Israel originated, it was at Hebron that Jacob, "the Syrian ready to perish," awaited the return of his children, and the supply of food from Egypt; it was from Hebron that the patriarchal family removed to their settlement in Goshen; and Jacob, when he beheld death's shadow descending upon him in the land of Egypt, had his faith directed towards Hebron, where Abraham and Isaac with their wives were buried; and his desire was that his mortal remains should be gathered to his fathers "in the cave of Machpelah, which is before Mamre, in the land of Canaan." Hebron afterwards became a Levitical city, and one of the cities of refuge. It was the capital of the kingdom of Judah in the earlier part of the reign of David, who, when he was made king over all Israel, transferred the seat of royalty from Hebron to Jerusalem. It was as a pontifical town that Hebron became the residence of Zacharias and Elizabeth, both of Aaronic descent; and in this part of the hill country of Judea they reared that wondrous child who was sent to bear witness of the baptismal consecration and the sin-absolving mission of the Son of God.

Hebron is still adorned with nature's beauty; the vine and the olive are there luxuriant, and sheep and oxen find abundance of rich pasture. But the faith of the Moslem has the unrighteous guardianship of the tombs of the Jewish patriarchs, a small and mean portion of the town being allowed as a residence for Jewish families who have resorted thither, that at their death they may be interred near the sepulchres of their illustrious ancestors. There are no Christians resident in the town, and it is a matter of great difficulty for Christian travellers to obtain access to its scenes of hallowed memory.

On the road from Hebron to Jerusalem is the now desolate site of Tekoa, where Amos the prophet was born. It is chiefly remembered as the residence of the wise woman who interceded with David for the restoration of his son Absalom.

About six miles to the north of Tekoa, and the same distance south of Jerusalem, is Bethlehem. To distinguish it from a place of the same name in Zebulon, it was called Bethlehem-Judah, or Bethlehem-Ephratah, the latter name signifying *fruitful.* This was the birth-place of David, and in the plains around it he kept his father's flocks. It was amidst the same pastures that those shepherds were occupied, to whom the angel of the Lord announced that mysterious nativity which fulfilled the prediction, "Thou Bethlehem-Ephratah, though thou be little among the thousands of Judah, yet out of thee shall he come forth unto me, that is to be ruler in Israel." The predominating population in this town is Christian; and a considerable trade is carried on by the inhabitants in the beads and crosses which are here manufactured. There is a building attributed to the Empress Helena, called the Church of the Nativity, connected with a convent at the extremity of the town; but there is strong reason for refusing to regard the cave called the grotto of the nativity as the precise place of the Saviour's birth, although we can imagine with what interest St. Jerome, who lived a long while in the convent here, committed to writing the thoughts which occurred to his mind in a situation so hallowed by its proximity at least to the birth-place of man's Redeemer. Tradition professes to identify also the valley in which the shepherds were keeping watch over their flocks by night, and the fountain from which the three men, at the hazard of their lives, brought water to David. There is perhaps no error in the representations by which the voice of modern time declares the ancient sanctity of that valley and its refreshing stream. But every Christian who visits Bethlehem must be prompted to think with livelier gratitude of the spiritual fountain there "opened for sin and for uncleanness," and to feel with increased force the propriety of our emulating the shepherds, "not only with our lips but in our lives," in rendering "glory to God in the highest," for the peace bestowed on earth, and the good-will shown towards men.

J. H.

PRACTICAL HINTS FOR THE SCHOOLROOM.

BOTANY AND THE VEGETABLE WORLD.

I. The Use and Application of Botany as a Principle of Education.

It must seem passing strange to the student of nature that, in the many and various systems of education now in vogue, which embrace an almost unlimited range of useful and general learning, so little. account is made of botany. Why, we may ask, does it form no part of the daily routine of school work? Is it because it is not generally considered practical knowledge, or because it is (or is esteemed) so dry and uninteresting a subject that it would rather tend to disgust than to instruct the young? It will not be difficult to show that the study of the vegetable world, which is, perhaps, the most extensive and diversified portion of the creation, cannot be less interesting and instructive to children, who are spending their early years amid rural scenes,—rambling through the fields and woodlands,—culling in sportive innocence the wild flowers scattered by Nature over the verdant meads, and watching the grateful vicissitudes of the seasons, and the various changes of the vegetable scenery,—it cannot be less instructive, I say, to those than the usual drudgery in English Grammar, or the dry details of Foreign Geography. Nor can it be less useful to the youthful farmer, who is destined to spend his life in agricultural pursuits, to study the nature of those trees, and shrubs, and herbs, and flowers, among which his lot will be cast, and on the knowledge of which will depend his skill and ultimate success in the art of husbandry than the rudiments of Astronomy, Algebra, Political Economy, or the more refined studies of the school-room.

But the utility of Botany is not limited to one class of society; it extends equally to all: we are all indebted to the vegetable world to an incredible degree. Not only man, but the countless hosts of animals, depend entirely on vegetation for their subsistence. And although some animals feed on others, those others will be found to owe their existence to the vegetable world. But not only our food, but also our drink, whether wine or beer, cider or milk, tea, coffee, cocoa, or chocolate, whatever it may be, was once growing in the vineyards, the orchards, or the fields. Our clothing, too, whether silk or cotton, linen or woollen, came originally from the same source. The mulberry tree, without doubt, supplies us with silk; the well-known cotton plant with cotton; the flax tree with linen; and wool refers us to the sheep which was fed on the grass which grows in the meadows. Then, again, our houses, with the costly furniture they contain, came originally from the forest or the field. Indeed, can you point out any part of the vegetable world which is not of service to man or beast. We are told that the common thistle, which we regard as a most noxious herb, makes the best glass, and their thorns and prickles furnish the most valuable salt. And is not the common bramble of immense importance to the husbandman? And the stinging nettle, which, as children, we tread on with contempt, is it not invaluable as a medicine? The plants which we may think but of little worth are no doubt useful for other of God's creatures. Animals require physic as well as food, and beasts and birds know well enough the medicinal herbs. Why do dogs eat *grass*, and the wounded stags *dittany?* And we are told, whether true or not, that swallows cure the sore eyes of their young with *celandine*. Dr. Sloane records a species of *aloe* which supplied fishing lines, bowstrings, as well as stockings, to a secluded people. And Dampier, in his voyage to the Campeachy, speaks of a wild pine; and Navarette, in his collection of travels, of a tree called bejuco; and Dr. Sloane also of a plant of Jamaica, called the waterwith, the leaves of which trees catch and preserve a considerable quantity of water, clear and refreshing, which proves an inestimable blessing to the inhabitants of those hot climates, particularly the herdsmen and thirsty travellers. Were it not for these vegetable reservoirs, the condition of some countries would be in the highest degree distressing; for when the rivers fail these plants are the only resource for the people. The non-importance of common weeds is founded entirely on our ignorance. The virtues of the common sunflower have not long been discovered, and yet how valuable is every part. The flowers furnish a rich supply of honey to the bee,—the leaves a nourishing food for cattle,—pigs will fatten on their seeds,—a useful oil is also pressed from them,—their stalks are good for kindling, and their ashes produce a large supply of alkali. Without enumerating more instances, are we not indebted to the vegetable world for the very air we breathe? Oxygen gas, which is the vital air, is prepared and produced by trees and plants. They give out oxygen for animal life, and animals, in return, give out carbon for vegetable life; and thus one part of creation is essentially dependent on the other.

Principles of vegetation	Carbon	the basis.
	Water	Hydrogen (15). Oxygen (85).
	Air	Nitrogen (72). Oxygen (28).

Botany, then, is a useful study; it is practical knowledge,—the wisest of men esteemed it worthy of his attention; for it is said that he "spake of trees, from the cedar of Lebanon even unto the hyssop that springeth out of the wall" (1 Kings, iv. 33); and I am sure it is amusing and entertaining to children. It gave me and my schoolfellows infinite delight in our school days, and, if taught upon the same principles, will afford equal delight to others. The plan I propose is this—not to teach the subject to a whole school indiscriminately, but to make it serve as a stimulus to industry and a reward to merit. Select the best boys from the upper classes, and form them into a class by themselves. These, during the spring and early summer, occasionally—say once a week, on the half holiday, or during a part of some afternoon—I would accompany on a botanical excursion over the meadows and the moors,—along the retired rural lanes, by rock and rivulet, and would there examine the modest unpretending beauties of nature. I know not a more effectual means than this to inspire children with just notions of the wisdom and goodness of God,—to lead them to reflect on and admire the common, the meanest objects in nature, and to attach them to their school and teacher. But to make an excursion of this kind interesting to children, they should previously be made acquainted with the first elements of botany;—I mean simply the alphabet of the science. I would not bore them with a dry list of scientific terms, to disgust them at starting. This is not the way we teach any other science. We do not commence, for instance, common arithmetic by first giving the definition of fractions and decimals, algebra and geometry. Let them feel the want of suitable terms to express their ideas before you give them; then, in all probability, they will remember them. All that will be needful will be common specimens of the different parts of plants and flowers to illustrate your lessons. You will also require a piece of chalk, and a large slate or black board, on which to sketch your diagrams, and describe the terms you explain. Then arrange the class before you, so that you may catch every eye, and every eye may see the board; give each a scrap of paper and a pen for notes, and then begin with the definition of the subject.

Lesson I.

On the Seeds and Roots of Trees.

I am going to tell you something, children, about what is called the vegetable world. All the things which God has created here below are put into three great classes—called *worlds*. All the animals, from the huge elephant to the little mite, are put into one class—and called the *animal world*. Then, again, all the vegetables, from the giant oak, which flourishes through a thousand winters, to the delicate little flower, which scarce lives through a summer, are put into another class, and called the vegetable world. Then, again, if we take away all the animals and vegetables, there would remain only stones and earth, and such things as are taken out of the earth by means of mines or deep pits—these are named the mineral world. Vegetables, then, you see, are a large class of creatures; and the study or knowledge of vegetables, remember, is called *botany*.

We have borrowed the word botany from the Greek language. *Botane* in Greek simply meant a plant. And there is a place now called Botany Bay, peopled by English transports, which took its name from the number of plants and flowers discovered there. (Point out the spot, and explain transports.) But in English the word botany has a wider meaning than it had in Greek. It implies a knowledge of plants, with their different names and natures. It teaches us also how they are to be cultivated,—what soil will best suit them,—what are wholesome and what hurtful. Hence it is doubly useful to colonists—those who leave one country to cultivate and occupy the barren and uncultivated parts of another. They may meet with a number of plants they have never before seen, as Robinson Crusoe did; and they may also have to remove some from their native country to a foreign soil. To do this successfully, they ought to know the nature of the plants as well as the nature of the soil. How botany teaches all this we shall see by and by. Tell me, now, how you would divide the vegetable world. (Into trees, shrubs or bushes, herbs and small plants.) You can tell me, with a little thought, in what respect plants differ from animals; but can you tell me in what respect they resemble or are alike each other? (Try and impress the following analogy upon the class:—)

I. They have parents, and a birth, like animals.
II. They require food to support them, and they grow from weakness to strength.
III. They have mouths, at the ends of the roots and under the leaves.
IV. The earth serves them for a stomach, and digests the food for them.
V. If they have no blood-vessels, they have sap-vessels, which are the same.
VI. They feel the cold in the winter, and are subject to diseases.
VII. They have bones and limbs in the hard frame-work of the trunk and branches.
VIII. They require rest and repose, which they get in the winter.
IX. And they are liable to death, and after death to corruption.

They may carry the analogy even farther than this. Name the different parts of a tree, beginning from the roots. (Roots—trunk—stem or stalk—boughs or branches—leaves—buds and blossoms—and the fruit.)

Which of these ought we to consider first? (The seeds, to be sure; for they contain all the rest.) Did it ever strike you how small the seeds are when compared to the parent tree, and how wisely God has so ordained it? Suppose the acorn bore the same proportion to the oak as the common bean does to its stalk—it would be larger than a man's head, and would probably lie on the ground and die, because it would be unable to bury itself as it now does. Who would suppose, on viewing an acorn, that it contained within it the roots, trunk, and branches of the mighty oak? But so it is; and if you were to soak the acorn in warm water for a few days, you would easily distinguish the shape of the future tree. You shall know more about the seeds when you come to the *fruit*,—but I wish you to take notice how wonderfully and wisely God has provided for the sowing of the seeds, and how his providential care extends even to the meanest of his creatures.

Where should you think the seeds of trees would fall if left to themselves? (Beneath the trees on which they grew.) But the ground beneath is generally very hard and dry, and receives but little rain or sunshine in the summer; and if all the seeds fell beneath, in the first place they would be too thick to grow; and in the next, they would be unable to penetrate the earth, or feel the beneficial effects of the rain and sun. To remedy or prevent this, you will find some seeds provided with wings to enable the wind to carry them from the tree and scatter them about. Some have one wing, some have more. Others have a hooked wing, to prevent them being carried too far. Pines have short legs or wings, just to enable them to crawl or flutter from beneath their parent tree, while dandelions are wafted to a distance like a feather. Some are shut up in a case, and when the seeds are ripe, the case bursts open as with a spring, and shoots the seeds far away. Many of the berry species are planted by birds. They swallow the berry, but the little hard stone which contains the seeds passes through them uninjured. Mistletoe is planted in this way; so are nutmegs in the East. These are most difficult to rear in any other way.

Now we know a little about the seeds, we shall pass on to the roots. What purpose do roots answer? (They fix the plant firmly to the ground, and so prevent the wind from upsetting it; and they also supply it with nourishing food, which they extract from the earth.) Many plants have two kinds of roots,—a large root, which is called the *caudex*, or stump,—from this spring a great number of small fibres or roots, called radicles. At the end of these radicles are some small white fibres called spongelets, at the end of which are the mouths of the plant. Here is a radish; the word means simply a root; this red part, which we eat, is the caudex or stump; these fibres are the radicles; at the end of these are the spongelets and feeders. To explain how the roots are formed, be provided with some broad beans which have been previously soaked or buried until they have begun to grow. Hand them round the class, together with some seed beans which have not been planted. Bid them open the latter, and they will discover between the two halves, which are called *lobes* and *cotyledons*, the *germ* or *vital principle* of the future plant. In the former they will observe the two lobes parting asunder, and a little green shoot making its appearance in one direction, and some small fibres in the opposite. The little shoot is called the *plumule*, and the fibres (as before) *radicles*. And as it will interest them to know what causes a hard, dead-looking seed to grow, they may be told that it is warmth in the first instance. A seed is similar to an egg, which must be warmed by the hen, or in an oven (as in Egypt) before it can be hatched into life. Seeds contain air, and when put into the earth the air becomes warmed and expands (remember what causes the wind and what the water to boil in the kettle). After they have thus expanded, by a change of temperature and other causes, they gradually cool again, and again expand or swell. This expansion and condensation continues until these lobes (point to them) become soft and pulpy. Then the roots begin to show themselves, and, being weak, are nourished by these soft, milky lobes, or cotyledons, until they are able to draw it for themselves from the soil. In fact, they are like the udder and teats of an animal. Now if the seeds be bad or withered, they could not of course nourish the young plant: so the roots would die, and the crop fail. We cannot be too particular in securing good seeds. In many plants these two cotyledons show themselves above ground with the young shoot. They are the bottom leaves, and are different in shape from the leaves of the plant. There is one thing more to remember about the roots, and that is their various shapes and ages. How many different shaped roots can you enumerate?

I. There is the branching root, such as in the oak and other trees.
II. The fibrous root, as in grasses.
III. The simple tuberous root, as in the turnip.
IV. The compound tuberous root, as in the potato.
V. The creeping roots, as in mint, twitch, &c.
VI. The spindle-shaped (or fusiform) as in the radish, carrot, parsnip.
VII. The scaly bulb, as in the white lily.
VIII. The solid bulb, as in the crocus and tulip.
IX. The coated bulb, as in the onion and hyacinth.

Some roots live only through one season, and are therefore called annuals. Barley is an annual.

Others live through two seasons, or through one winter, and die at the close of the following summer, and are called biennials. Wheat is a biennial.

Others, again, live and flourish through many years, as trees and shrubs, and are hence called perennials.

(*To be continued.*)

ON THE NEGLECT OF ARITHMETIC IN OUR MOST EMINENT CLASSICAL SCHOOLS.

In a recent notice of Dr. Whewell's work, entitled, "Of a Liberal Education in general; and with particular Reference to the leading Studies at Cambridge," allusion was made in our Journal to his remarks upon the relation between the university system and school teaching, and upon the great classical schools. The importance of this relation is obvious, especially when we consider the nature of the Universities of Oxford and Cambridge, as compared with foreign universities, or with the University of London, which has been framed upon a foreign model. The Universities of Oxford and Cambridge are Educating Bodies, and not, like the London University, bodies whose sole function it is to award prizes, confer degrees, and the like. Young men are sent to Oxford and Cambridge, not merely to show what they have learnt, but also to learn. Hence the teaching of our schools should have, for one of its objects, to fit youths for being further educated while at the universities. This view of the relation of our schools to our universities suggests some important rules for the general conduct of the studies of young men. Of these one, for instance, is, that the object of schoolmasters and early tutors should be, not to carry their pupils through all the subjects of university teaching, from the highest to the lowest, so much as to teach them thoroughly well in the lower subjects, and to prepare them by a good fundamental instruction for a progress in the higher subjects, when the university course brings them to that stage. We propose in this paper to give the substance of Dr. Whewell's observations under this head as applied to the study of mathematics.

In the mathematical portion of school teaching the object ought to be, not so much to teach what will fit the pupil for the university examinations as for the college lectures. And as the basis of all real progress in mathematics, the boy ought to acquire a good knowledge of arithmetic, and a habit of performing the common operations of arithmetic, and of applying the rules in a correct and intelligent manner. Now arithmetic is a matter of habit, and can be learnt only by long-continued practice. For some years of boyhood there ought to be a daily appropriation of time to this object. Geometry and algebra do not require so much time. Geometry is a matter of reasoning; and when the proofs are once understood, the student has little more to do. And although algebra requires, like arithmetic, the habits of performing operations on symbols, the operations of algebra are learnt with comparative ease, when those of arithmetic are already familiar. We may say, generally, that boyhood is fitted for the formation of practical habits, and that the aptitude to attend to general reasonings comes with more advanced youth. Hence it follows, that in the most natural course of education, at school we learn to *do*; at college we learn reasons *why* we do; at school we learn to construe and to cipher; at college we are invited to follow the speculations of philologers, and to attend to the proofs of the rules of arithmetic. And the tastes of boys, for the most part, correspond to this distribution of employments. They can learn to perform and apply the rules of arithmetic, and they take a pleasure in the correctness of their operations, and in the manner in which the rules verify themselves; but they find it irksome to follow the reasoning of Euclid, where the interest is entirely of a speculative kind. The interest which belongs to demonstration as demonstration, comes at a later period, when the speculative powers, in their turn, begin to unfold themselves. And the interest of demonstration is greater, when the truth proved is one with which we are already familiar in practice; as when the reasons are rendered for the common rules of arithmetic. Demonstrations regarded with this interest, are a very effective means of unfolding the reasoning powers. With a view to the encouragement of such mental processes as these, Dr. Whewell considers that the mathematical education of boys at school might be extended to practical methods, much further than is commonly done, at least at classical schools; and, that it would be a great improvement, if boys were not only made to learn arithmetic, but also mensuration—that is, the practical rules of finding, from the necessary data, the areas of triangles, circles, sectors; the solid contents of prisms, pyramids, cylinders, spheres, and the like. Such knowledge would be, upon innumerable occasions, of great value in the business of life; and would make the proofs which speculative geometry gives, of the truth of such rules, both much more intelligible, and much more interesting than they generally are. That schoolboys can learn so much of mensuration, and will usually take pleasure in learning and applying it, the experience of many of our commercial and other schools abundantly shows. Other practical matters in mathematics might, so far as time allows, be learnt at school; for instance, the use of logarithmic tables, and perhaps the solution of triangles by trigonometrical tables. There is the more reason for teaching these practical processes to the schoolboy, because, if not learnt then, they are rarely performed with facility and correctness by the student at the university; for though the theory of the processes is brought before him, he has not time to familiarize himself with the practice. And if boys at classical schools were well exercised in arithmetic and mensuration, with the use of logarithmic tables, they would find this a more congenial employment than going over the proofs of geometrical propositions; and would come to the university prepared to pursue their mathematical studies with alacrity and intelligence, instead of finding in them, as they often do now, a weary and obscure task, which they engage in only as a necessary condition of some other object, and which produces little effect in that education of the reason which is its proper end.

Such is the mathematical course which Dr. Whewell recommends to be taught at school, as a preparation for the mathematics which are to be studied at the university. He considers that mathematics cannot be studied to any purpose at the university, except an effectual beginning is made at school. This, he says, is true, even of speculative portions of mathematics, such as geometry; but still more true of practical sciences, such as arithmetic, algebra, and practical trigonometry, in which the learner has to apply rules and to perform operations, which it requires considerable time and application to learn to apply and to perform correctly, and still more, to perform both correctly and rapidly. And he adds, "if this is not learnt during the period of boyhood, at least with regard to arithmetic, it is never learnt; and when this is the case, all real progress in mathematics is impossible. Yet," —he proceeds to observe, (and we must remember, that his observations are the result of no ordinary experience,) "how imperfectly arithmetic is generally learnt at our great schools, is remarkable to the extent of being curious, besides being, as I conceive it is, a great misfortune to the boys. The sons of great merchants, bankers, and fundholders, when they leave school, are very generally incapable of calculating the discount upon a bill, and often not able to add up the sums of an account. And few indeed of the sons of our great landowners can calculate the area of a field of irregular, or even of regular form and given dimensions. This appears to be a lamentable state of things on every account; in its first and lowest bearing, because such ignorance is a great impediment in the practical business of life; in the next place, because arithmetic is in itself a good discipline of attention and application of mind, and when pursued into its applications, an admirable exercise of clearness of head and ingenuity;—in the next place, because, as the boys of the middle classes at commercial schools are commonly taught arithmetic (and generally mensuration also), effectively and well, the boys from the great schools have, in this respect, an education inferior to that which prevails in a lower stage of society:—and, in the next place, again, because the want of arithmetic makes it impossible that such young men should receive a good education at the university. On all these accounts, it appears to me in the highest degree desirable, that arithmetic at least should hold a fixed and prominent place in the system of our great schools." And in another place he remarks, that not only do young men highly intelligent and well instructed in the classics, come to the university, most of them knowing little of the mathematics, many nothing; but such persons have often acquired a repugnance to mathematics, from the aspect under which they have seen the subject at school; and would in many cases, study it with more advantage if they were to begin it afresh, when they arrive at the university, provided time enough could be given to it.

Whilst pointing out the unsuccessful manner in which mathematical studies have hitherto been conducted at our great schools, Dr. Whewell bears honourable testimony to them in other respects, which must not be omitted, because it affords the best grounds for believing that this particular defect will be remedied, as soon as a suitable remedy can be devised. "I have," he says, "the highest opinion of many of the excellent men who are at the head of our several great schools; and so far as I am acquainted with the present state of those institutions, I admire greatly both the improvements of system and the elevation of their general spirit and character, which have taken place in many of them of late years. But still, they may be regarded as exclusively classical schools. No other subject than classical studies, attains comparatively, any hold upon the minds of the scholars. In particular, the mathematics are not, at most of these schools, taught generally and effectually as part of the business of the school. Whatever means have hitherto been employed in teaching arithmetic in the great schools, it is plain that they are insufficient with regard to the majority of the scholars; and that new and better means should be devised and introduced."

Dr. Whewell does not profess to be sufficiently well acquainted with the system of great schools to be able to suggest how this may best be done; but he conceives that it must be done by making arithmetic a part of the system of the school; not a mere appendage to the ordinary work of the school, enjoined it may be and provided for, but not looked upon with any regard and respect by those who govern the school and direct the minds of the boys. Arithmetic, and, when that has been mastered, geometry, mensuration, algebra, and trigonometry, in succession, should, he says, form a part of the *daily* business of every school which is intended to prepare students for the university; and he especially urges that arithmetic and a portion of Euclid's geometry should be taught to all the scholars in our great classical schools —taught so as to be familiarly used and permanently possessed, and, with that view, *made a part of the daily system* of those schools. He observes, that a great part of the vice of the mode in which such branches of learning are now taught at these schools is, that they are taught, not as valuable for their own sakes, but as means of passing examinations in the universities. Hence boys are not taught things the most fit for boys, and in the manner most fit (as the practical teaching of arithmetic is); but they are taught, as much as possible, in the manner most resembling the teaching of the university. And undoubtedly the teachers, looking only to the boys' university career in what they teach, think this a great improvement on the system of teaching mathematical subjects in these schools; but this notion Dr. Whewell condemns, as altogether a mistake. Boys, he says, should be taught arithmetic and geometry, and, it may be, algebra and trigonometry, in the great classical schools, in the same way in which they are in the best commercial schools: at any rate, in some way in which the knowledge, and not the passing of examinations, is regarded as the valuable result.

In concluding this abstract of Dr. Whewell's remarks upon school instruction in mathematics as preparatory to a university course, we would briefly remind our readers of the great importance which he assigns to early instruction in arithmetic, and to a knowledge of arithmetic, as the foundation of all real progress in mathematics. His observation that arithmetic is of a practical nature, and therefore peculiarly suited to the tastes of boys, is well worthy of notice, as also that it is a matter of habit, and can be learned only by long-continued practice. Hence the necessity of a daily appropriation of time during some years of boyhood to this object. Though we quite agree with Dr. W. in thinking that there should be as nearly as possible a *daily* appropriation of time to this employment, yet we believe that the period so set apart, if well employed, need not be long. How such period may be most effectively employed so as to afford daily improvement to all, appears to be the main problem, upon solving which depends the success of any remedy for that neglect of arithmetic in our great schools of which Dr. W. complains. For its solution we should be disposed to refer the heads of those institutions to the practical skill and experience of those who have of late been so successful in teaching the elements of arithmetic and mathematics in our best national and training schools. The first part of arithmetic is very much a matter of mere drill, and readiness in such necessary processes as multiplication and division, and familiarity with the tables and with the elements of fractions, are most easily and perfectly acquired, in the first instance, by repetition and by being questioned in classes, and by working out sums aloud with the help of the black-board, as in our national schools. Thus boys are made to understand the rules of arithmetic, and how to apply them to particular questions, with least sacrifice of time by the master, and with most ease to themselves. Then, when sums are set them to be done separately by themselves, they have some chance of making them out; and, if they cannot succeed at first, the master quickly discovers it, and when he next uses the black board, he takes occasion to address himself to the correction of such mistakes, or to the removal of such difficulties as may have hitherto prevented boys from working out the sums by themselves. Now, the junior boys at our public schools might thus be taught this elementary knowledge by masters who have been thoroughly habituated to the most approved modes of teaching arithmetic at the best training schools. Such masters might act as non-commissioned officers in our army, and simply go through the processes of teaching, in the presence and under the eye of the higher mathematical tutor, who would be responsible for the discipline and general control of the boys. This would prevent the evil which often arose from the old practice of handing over boys to the writing master, who generally gave instruction also in figures, but who was unable, from his inferior position, to maintain that order, which is absolutely essential in any exercise where strict and undivided attention is indispensable, as in arithmetic, if any real progress is to be made. It is plain that the mere presence of the regular mathematical tutor, when subordinate teachers are employed in going through the elementary and more mechanical processes, would effectually remedy any evil of this kind; whilst it would at once enable our great schools to partake of the benefits to be derived from the recent undoubted improvements upon the old method of communicating an elementary knowledge of arithmetic. When the boys had thoroughly mastered these first steps, and acquired some facility in performing the common operations of arithmetic, and in applying the rules in a correct and intelligent manner, further progress would be not only easy but interesting, and we should hear no more of the complaint in which Dr. Whewell is tempted to indulge, namely, that "now boys in general are more slow in understanding any portion of mathematics than they were thirty years ago."

Correspondence.

BIBLE LESSON.

Rev. Sir,—In a former Number of your Journal you inserted notes of a Bible lesson, and promised that a series of them would follow; but, as they have not come, I send you the following lesson, hoping that it may pave the way for others.

Your obedient Servant,
Coventry, April 9. Thomas Rankine.

St. Mark i. 40. *Christ cleanseth the Leper.*

1. The meaning of the principal words.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

1. Leper—beseeching—cleansed—testimony—publish.

2. The leper—leprosy—its character, small beginning—sometimes inflicted as a punishment (Examples, Miriam and Gehazi)—the posture of the leper—his prayer—Jesus toucheth him—His compassion for him—his cure—to show himself to the priest—why (Lev. xiv.)—leprosy the type of sin.

3. (a.) The *one* cure for leprosy—but *one* for the disease of our soul.

(b.) Humility, in approaching, due to GOD—kneeling in His presence.

(c.) Encouragement from the compassion of our blessed Lord.

(d.) Faith from the poor leper.

Notices of Books.

LETTERS TO YOUNG PEOPLE. BY THE LATE W. A. SHIRLEY, D.D., BISHOP OF SODOR AND MAN. Pp. 164. (London: *Hatchard*. 1850.)

WHILST we approve of the object of this little volume, we hardly think that the letters contained in it are such as to justify publication. It is certainly desirable for parents, and others interested in the welfare of young persons when temporarily absent, to cultivate an epistolary intercourse with them; since it may often be so managed as to be made a very powerful instrument in the formation of character. But the effect thus produced will generally arise rather from the individual character and personal influence of the writer than from anything peculiarly striking in the letters. The effective parts of the letters will generally consist of seasonable, though perhaps apparently slight, allusions to past events or future prospects, of great interest to those to whom they are directly addressed, but often barely intelligible to others. Few persons can write letters which will bear publication; and still fewer do write such letters to their children, or to young persons under their care; or such as, if practically useful to them, would be so also to strangers. And this, we think, is as true of these letters of Bishop Shirley as of those of most ordinary letter writers. To those who were acquainted with the amiable character and superior abilities of the bishop, it must be interesting to observe in these letters the affectionate care and pains which he bestowed upon his children, even in their earliest years; how he wrote to his little boy in printing characters, that the child might be able to read the letter himself, and write one like it; and how he entered into all the details of the amusements of his little folks. It may, too, perhaps be well that parents generally should know that persons of very superior attainments are not above such acts as these, but consider them of so much importance as to make a point of not neglecting them, even when fully engaged with weighty matters of professional duty. Still it seems hardly fair to publish letters of this description when written by such a man as Bishop Shirley, unless they are somewhat superior of their kind, which we think these letters can scarcely claim to be. They evidently proceed from the pen of a pious and affectionate parent, and of an honest and practical adviser; but there is little else remarkable in them. We give however two extracts, which contain advice that may be of general service, and are favourable specimens. The first is addressed to a boy at school, on the subject of receiving the holy communion; the other is a reply to a youthful correspondent who had written slightingly of repetition as a school exercise:—

LETTER XXXVI.

"I hardly know what to say about the Sacrament. You have had my general advice on the subject; but I consider your present state (would that I had reason to believe it was past!) of idleness a state of sin. Your work may have been hard, perhaps rather too hard for you; but is there the least ground for thinking that you did your best? if not, you have been living in a state of sin; for your schoolwork is your present duty, and your religious principles should be manifested by the conscientious discharge of your present duties. I do not say that the recollection of sins should keep you from the Lord's table; but certainly you should not approach that table except with deep penitence for the past, a lively faith in God's mercy through Christ to forgive and heal you, and a stedfast purpose to lead a new life. Examine yourself on these heads, and do as your conscience may dictate."

LETTER LII.

"I do not think so lightly of the repetition as you seem inclined to do, and am persuaded that the power of learning by heart accurately is a test of intellectual vigour, and that the practice is an excellent method of strengthening the mind, as it most unquestionably is of improving scholarship. I was reading lately a life of Porson, by Dr. Young; and his biographer says, that his extraordinary scholarship was mainly the effect of a wonderful memory, which had been exercised at school by his having to learn by heart every lesson he construed. The real fact is, that you are lazy; and though you will read what interests you, and make an effort for some special object, you will not do your ordinary work with steady persevering diligence. This is, however, injurious to your moral and intellectual character, and fatal to your scholarship."

CONFIRMATION DAY. BY THE REV. H. GOODWIN, M.A., LATE FELLOW OF GONVILLE AND CAIUS COLLEGE, AND MINISTER OF ST. EDWARD'S, CAMBRIDGE. Pp. 58. (Cambridge: *Deighton.* London: *Rivingtons.*

THE season of confirmations, which has again come round, leads us to notice the above tract. Its title sufficiently represents its object, which the author has more fully described as being "A book of instruction for young persons; how they ought to spend that solemn day on which they renew the vows of their baptism, and are confirmed by the bishop with prayer and the laying on of hands." Its design is to assist young persons in spending, to the best advantage, one of the most important of their days. The author confines himself to the endeavour of placing the usual instruction given previous to confirmation in a practical and devotional form. This he has done very successfully, and has thus supplied a want which other clergymen as well as himself must have often experienced; namely, that of a hand-book, to serve as a sort of guide to young persons on the day of confirmation, to assist them in spending each hour of it in the most fitting and profitable manner.

AN ELEMENTARY COURSE OF PRACTICAL MATHEMATICS: FOR THE USE OF SCHOOLS. PART II. PRACTICAL GEOMETRY AND MENSURATION. BY JAMES ELLIOT. (Edinburgh: *Sutherland & Knox.* London: *Simpkin, Marshall, & Co.*

IN 1845, the author of this work published a "Complete Treatise on Practical Geometry and Mensuration," together with a Key containing full demonstrations of the rules, and solutions of all the more difficult or laborious exercises, accompanied by critical and explanatory remarks. These two excellent volumes form a valuable addition to the list of books on practical geometry and mensuration; for though we have several works on both subjects, yet Dr. Hutton's large treatise on mensuration is the only work having any pretensions to completeness which is worth consulting. While adverting to these two complete treatises on mensuration, it may be useful to remark that the expressions for the solid content of the Dodecahedron and Icosahedron are not given in their simplest form in either of these works, nor in any treatise which has come under our observation. In Dr. Hutton's mensuration, as well as in Mr. Elliot's, the expressions for the solid content of these two regular bodies are respectively $\frac{5}{2}L^3\left(\frac{47+21\sqrt{5}}{10}\right)^{\frac{1}{2}}$ and $\frac{5}{6}L^3\left(\frac{7+3\sqrt{5}}{2}\right)^{\frac{1}{2}}$; now the square root of each of these binomial surd expressions can be extracted by the usual process given in all books on algebra; the square root of $\frac{47+21\sqrt{5}}{10}$ or $\frac{47}{10}+\frac{21}{10}\sqrt{5}$ is $\frac{3}{2}+\frac{7}{10}\sqrt{5}$ or $\frac{15+7\sqrt{5}}{10}$, and the square root of $\frac{7+3\sqrt{5}}{2}$ or $\frac{7}{2}+\frac{3}{2}\sqrt{5}$ is $\frac{1}{2}(3+\sqrt{5})$, and substituting these results in the preceding expressions, the solid content of the Dodecahedron is $=\frac{1}{4}L^3(15+7\sqrt{5})$, and the solid content of the Icosahedron is $=\frac{5}{12}L^3(3+\sqrt{5})$, where L denotes the length of the edge, or lineal side of the face. These expressions are much simpler than those usually given, and though the mensuration of the five regular solid bodies is not of great practical utility, still the expressions, if given at all, ought to be exhibited in their simplest form. These modified results were first pointed out by Mr. Rutherford, in the *Northumbrian Mirror*, vol. I., p. 153, a periodical work, published at Alnwick in 1837.

The *first part* of Mr. Elliot's "Elementary Course of Practical Mathematics" is "Algebra," which was published several months ago; and the *second part*, on "Practical Geometry and Mensuration," recently published, is only an abridgement of the complete treatise on the same subjects, alluded to at the commencement of this notice. In his preface to the complete treatise, Mr. Elliot recommends the scholar to go over the large print of the several parts of that work, and to solve only the large-print exercises, before he attempts to study the whole of the volume in regular succession. The abridged form consists of nearly all the large print in the larger treatise, and the numbers of the paragraphs and propositions are retained the same as in the complete work, so that in the elementary course many numbers are necessarily omitted.

By the omission of several paragraphs and propositions, the complete treatise is reduced to a very convenient-sized volume, well adapted as a class book for beginners. In the Practical Geometry we are glad to observe the insertion of several useful problems on "Geometrical Perspective," which greatly enhances the value of this part of the book. On the whole, we are much pleased with the *second part* of Mr. Elliot's "Elementary Course," and we think it will be found a very useful class book, abounding in original exercises on the mensuration of lines, of surfaces, and of solids, and containing much varied and practical information. The concluding chapter consists of a great number of unresolved exercises, without answers, on every part of mensuration. *Part Third,* " On Logarithms and Plane Trigonometry," is in preparation.

THE ELEMENTS OF MECHANISM: CONTAINING A FAMILIAR EXPLANATION OF THE CONSTRUCTION OF VARIOUS KINDS OF MACHINERY, &C. BY THOMAS TATE, LATE MATHEMATICAL PROFESSOR IN THE BATTERSEA TRAINING COLLEGE (London: *Longman & Co.*)

IN this very fruitful age of mechanical contrivances and inventions, it would be an herculean task to give a familiar description of even a tithe of the numerous applications of machinery, whether these applications be to the arts and manufactures, or to the more important purposes of human life. The advantages and uses of machines are apparent to every observer; for " amid the busy haunts of men," we cannot look around without observing a machine of one kind or another, either for accumulating power, or for exerting forces too great for human or animal power. With the common crane, whose uplifted front is visible on every wharf, one man can raise a weight which would require the united efforts of several horses to move; and with the coining and punching machine, which is a lever attached to a screw, and carrying heavy masses of matter at its extremities, a single man can produce the impression of the die upon the metal, or perforate the plate, which the unaided pressure of a hundred men would fail to effect. The distribution of power and motion is regulated by machines, as, for instance, by the pendulum of a clock, or by the governor of a steam engine, uniformity of the rate of motion is preserved and maintained. By the intervention of a series of wheels, the motions thereby communicated to the several parts of a machine may be modified and adjusted to the requisite speed; the direction of motion may be changed by mechanism, as in the steam engine, where the reciprocating rectilinear motion of the piston is made to turn wheels, to pump water, or to produce the various kinds of motion which may be required for special purposes; and the action of forces may be prolonged by machinery, as in the case of a watch, which continues in action for twenty-four hours after it is wound up, the winding up occupying only a few seconds. Machines are useful in registering operations, in effecting uniformity and precision in work to be done, and above all in economising time and labour.

Under the title of " The Elements of Mechanism," Mr. Tate has produced a most useful little volume. In his prefatory note, the author explains the term *mechanism* as it is usually employed :—" Mechanism treats of the construction and relative motions of the different pieces which compose machines, without regard to the forces which may act upon them." The work is *for the use of schoolmasters and private students,* being designed " to supply teachers and students of engineering with a familiar exposition of the leading principles of mechanism, and to apply them to the elucidation of the most important pieces of machinery."

This excellent production contains 176 pages of the most useful and interesting matter, and to give the reader an idea of the value of the work, it will be sufficient to mention that from the first page to the last it is full of really useful and practical information, embodying a description of the construction and use of a great variety of machines in common use, with about 200 diagrams for illustration. To give extracts from such a work would occupy more space than the Journal can afford, nor is it necessary to do so, inasmuch as we cannot refrain from cordially recommending every reader to purchase a copy of the work, that he may at once be both gratified and instructed by the perusal of its pages, and that he may lay up a store of interesting and useful information with reference to the various machines which are now so common in ordinary life. We must not, however, omit to mention that the concluding chapter contains a valuable collection of problems on mechanism, amounting to upwards of one hundred, chiefly intended to illustrate the advantages gained by machines. They are almost all new exercises, and the student will derive much benefit by writing out their solutions. In page 3 the answer to example 3 should be "$1\frac{4}{11}$ seconds," instead of "$1\frac{3}{7}$ seconds."

THE ROTATION OF THE EARTH RENDERED VISIBLE.

An experiment is now being exhibited in Paris, by which the diurnal rotation of the earth is rendered palpable to the senses, and it is certainly one of the most remarkable of the modern verifications of theory. Although the demonstration by which the rotation of the earth has been established be such as to carry a conviction to the minds of all who are capable of comprehending it to which nothing can be imagined to add either force or clearness, nevertheless even the natural philosopher himself cannot regard the present experiment without feelings of profound interest and satisfaction, and to the great mass, to whom the complicated physical phenomena by which the rotation of the earth has been established are incomprehensible, this experiment is invaluable. At the centre of the dome of the Pantheon a fine wire is attached, from which a sphere of metal, four or five inches in diameter, is suspended so as to hang near the floor of the building. This apparatus is put in vibration after the manner of a pendulum. Under, and concentrical with it, is placed a circular table, some twenty feet in diameter, the circumference of which is divided into degrees, minutes, &c., and the divisions numbered. Now it can be shown by the most elementary principles of mechanics that, supposing the earth to have the diurnal motion upon its axis which is imputed to it, and which explains the phenomena of day and night, &c., the plane in which this pendulum vibrates will not be affected by this diurnal motion, but will maintain strictly the same direction during twenty-four hours. In this interval, however, the table over which the pendulum is suspended will continually change its position in virtue of the diurnal motion, so as to make a complete revolution round its centre. Since, then, the table thus revolves, and the pendulum which vibrates over it does not revolve, the consequence is, that a line traced upon the table by a point projecting from the bottom of the ball will change its direction relatively to the table from minute to minute and from hour to hour, so that if such point were a pencil and that paper were spread upon the table, the course formed by this pencil during twenty-four hours would form a system of lines radiating from the centre of the table, and the two lines formed after the interval of one hour would always form an angle with each other of 15°, being the 24th part of the circumference. Now, this is rendered actually visible to the crowds which daily flock to the Pantheon to witness this remarkable experiment. The practised eye of a correct observer, especially if aided by a proper optical instrument, may actually see the motion which the table has in common with the earth under the pendulum between two successive vibrations. It is, in fact, apparent that the ball, or, rather, the point attached to the bottom of the ball, does not return precisely to the same point of the circumference of the table after two successive vibrations. Thus is rendered visible the motion which the table has in common with the earth. It is true that, correctly speaking, the table does not turn round its own centre, but turns round the axis of the earth; nevertheless, the effect of the motion relatively to the pendulum suspended over the centre of the table is precisely the same as it would be if the table moved once in twenty-four hours round its own centre, for although the table be turned in common with the surface of the earth round the earth's axis, the point of suspension of the pendulum is turned also in the same time round the same axis, being continually maintained verticle above the centre of the table. The plane in which the pendulum vibrates does not, however, partake of this motion, and consequently has the appearance of revolving once in twenty-four hours over the table, while, in reality, it is the table which revolves once in twenty-four hours under it.

METROPOLIS EVENING SCHOOLS.

The following Document has been issued by the London Diocesan Board of Education.

79, *Pall Mall, April,* 1851.

REV. SIR.—I am desired to call your attention to a very important communication from the Committee of Council to this Board, in reply to some inquiries made by one of its members, as to the amount of encouragement my Lords would be prepared to give, in establishing Evening Schools in the metropolis. The circular to which reference is made has already been sent to you, and agreeable to the offer therein expressed, this Board has already made several grants to aid in *establishing* Evening Schools. In consequence, however, of the facility afforded to Clergymen by the Committee of Council for providing Teachers, this Board will be prepared still further to aid, in cases where the local resources fail, *in making up a proper salary for an Assistant Master*, who should also have the charge of an Evening School. The annual allowance of £15 is the least sum granted by the Committee of Council to a certificated Master, but in order to obtain that grant, £30 additional and a lodging must be provided by the Local Committee. It is not improbable but this or even a greater sum might be obtained by a moderate charge for evening tuition, to be paid weekly by the scholars; and the grants made in still further augmentation by this Board, would in many cases remove the difficulty which the managers of schools in poor districts find in procuring a well-instructed assistant master. I have therefore to inform you, that this Board will receive applications from Clergymen who desire to establish an evening school, for grants in aid of assistant masters' salaries.

I am, your obedient servant,
RICHARD BURGESS, *Hon. Sec.*

The Circular of the Board of 21st January, 1851:—

REV. SIR,—The attention of the London Diocesan Board of Education having been called to the subject of Evening Schools for the children of the working classes, and particularly to the desirableness of adopting measures to encourage the extension of the system throughout the metropolitan districts, the Board have resolved on entertaining applications for pecuniary aid towards the establishment of such schools.

It is proposed that these schools should be limited to young persons between the ages of 12 and 17. They are not to be in any way identified with what are called Free or Ragged Schools, but are for the respectable and well-conducted of the labouring class; and it is thought that the offering to such increased and large facilities of obtaining evening instruction may do much to remedy the great defects which are found to exist in the means of education now so extensively afforded by the Church. The Board allude particularly to the very small amount of knowledge, religious or otherwise, retained in after years by those whose education ceases at a very early period, the number of children of the labouring poor who never attend daily schools at all, and the hitherto insurmountable difficulties experienced by the Clergy, in their endeavours to keep up a pastoral and friendly connection with those who have left school before the period of Confirmation and admission to the Lord's Table. The Board are of opinion that such schools when once established, will in many, if not in most instances, become self-supporting; but as the difficulty of maintaining schools for the first year or two might in some instances be great, they will be ready to give assistance to the Clergy, according to the circumstances of the case and the means at their disposal, towards the establishment of Evening Schools in their respective parishes and districts.

I beg to remain, Rev. Sir,
Your obedient and fathful servant,
Richard Burgess, *Hon. Sec.*

P.S. Any further information as to the nature of the proposed schools may be obtained on inquiry at the Office.

The Answer of the Committee of Council, dated 8th March, 1851:—

EVENING SCHOOLS FOR THE LABOURING CLASSES.

Rev. Sir,—I have the honour to inform you that your letter of the 27th ultimo has been submitted to the Lord President of the Council, together with the circular enclosed in it from the Secretary of the London Diocesan Board of Education, relating to Evening Schools for young persons between the ages of 12 and 17 among the respectable and well-conducted portion of the labouring class.

The Lord President agrees with the Diocesan Board in attaching much importance to the effects which schools of this description are calculated to produce, among a section of the labouring population which is now launched from school into life too rapidly, for the most part, to have received any enduring impression, either upon the intellect or the character, in the course of their instruction. This remark applies with peculiar force to the children of the metropolitan poor, whose small opportunities for domestic association, and whose ready means of independent livelihood, remove them at once from influences that serve more or less to prolong the state of pupilage among persons of the same age in other classes.

There being therefore no doubt of the important ends which are to be answered in providing for the continued education of the persons contemplated in the circular of the London Diocesan Board, the Lord President is of opinion that any proposal which goes to connect the schools intended for their reception with the existing elementary day schools, unites many advantages. Among others, it employs an existing and improved machinery, while it secures the means of adaptation between the elementary and the secondary school.

The Lord President, therefore, would not see any difficulty in advising the Committee of Council on Education to allow the usual grant to a certificated teacher, who was engaged by the managers of an elementary day school under inspection, on the understanding that he would be employed during either the morning or afternoon in the elementary school, and afterwards in the evening school.

The Lord President is happy to find that the London Diocesan Board propose to release the teacher of the evening school either from the morning or afternoon school, since under no circumstances would his Lordship feel himself justified in encouraging arrangements whereby the same teacher (in addition, possibly, to the charge of pupil teachers) should be required to keep school in the morning, afternoon, and evening of each day.

An elementary, or even a secondary, school for the poor, differs essentially from schools where the children of opulent parents are sent to be educated. In schools of this latter kind, little more is done by the teacher in school-time beyond hearing the scholars repeat, and beyond examining them upon, the lessons which they are presumed to have learnt elsewhere. But in a school for the poor there is very little, if any, preparation of lessons. The whole work of the school has to be done in the school-hours, and the teacher, instead of having merely to ascertain what the children have learnt, has to be actively and positively teaching them from first to last. Six hours of such labour daily, with another hour and half devoted to pupil teachers, and the time needed for private study, form a task which few constitutions, even of the strongest kind, can continue to fulfil without suffering. To add to this routine of labour, the charge of an evening school can end only in exhausting or driving away the teacher.

There is also another point of considerable importance as regards the annexation of evening schools to day schools for the children of the labouring classes. Pupil teachers, apprenticed under their Lordships' Minutes of 1846, cannot with propriety be employed in evening schools. For purposes of superintendence, they are too nearly of the same age with the rest of the scholars, if not younger than a considerable portion of them; and the kind of instruction to be given, as well as the kind of influence to be exerted, are such as cannot be expected from pupil teachers. Added to which, their attendance in the morning and afternoon school, together with their own private studies and special instruction, are fully sufficient to occupy their time and tax their powers. The Committee of Council might not, perhaps, object to their occasional attendance at lectures, or during other simultaneous instruction of more than ordinary interest, in the evening school; but my Lords could not sanction any arrangement which should substitute attendance at the evening school for that special and separate instruction which (in virtue of the gratuity allowed on their account) pupil teachers are entitled to receive, and my Lords are bound to require for them, out of school-hours. The managers might find it necessary to provide specially for the apprenticeship of pupil teachers under the Minutes of 1846, but however (with the concurrence of the Committee of Council) this might in each case be settled, the responsibility for superintending and instructing the pupil teachers would continue (as at present) to rest with the master to whom they might be apprenticed, and who would receive the gratuity for them in consideration of this charge.

It only remains to notice the expense to be incurred for the second teacher. Their Lordships' lowest augmentation grant (£15 per annum) requires to be met by a salary of £30, in addition to a house, or suitable lodgings, rent free.

An evening school constituted in the manner now proposed, as supplementary to a daily school under inspection, would be admissible to receive grants (under the Minute of 18th December, 1847) for the purchase of books and maps at reduced prices.

I have the honour to be, Rev. Sir,
Your obedient servant,
R. R. W. Lingen.

To the Rev. Henry Hughes,
12, Gordon Street, Gordon Square.

Intelligence.

PROPOSAL FOR ESTABLISHING A TRAINING SCHOOL,

APPROVED BY THE LORD BISHOP OF BATH AND WELLS, RESPECTFULLY ADDRESSED TO COMMUNICANTS OF THE CHURCH OF ENGLAND.

I.—The basis of the proposal made in this paper is the *necessity* which appears to have arisen, that the Church of England should organize Training Institutions which shall be altogether independent of State assistance, and shall have no connection, direct or indirect, with the Committee of Council on Education.

II.—The relations between the Church and the State of England in respect of Education have not been of the Church's own seeking. It is not, however, the purpose of this paper to comment upon these relations and their causes in any spirit of hostility to the civil power; or to imply that the connection between Church and State cannot any longer subsist because it appears to have become *necessary* that the Church should decline the co-operation of the State in the matter of Education: the purpose is to deal with these relations and their causes simply as *facts*, which appear to force upon the Church the *necessity* of providing for the security of her doctrine and discipline—so far as this can be provided for in her Schools—by efforts exclusively her own, and subject to no external influence.

III.—The facts of the case appear to be these:—

1.—The character of the State of England is not a Church character. The State in its public acts proceeds upon the assumption that all forms of religious belief are of equal value with "the Catholic Faith" of the Church of England; and the traces which still remain of the true position of that "Faith," in relation to the State, only serve to weaken men's perceptions of the danger which is involved in all the action of the State whenever it touches questions affecting the doctrine or the discipline of the Church—and *do not* serve to provide one particle of *real security*.

2.—The State naturally seeks to engraft its own character of religious indifference upon the Schools of the Church, and to assimilate all Church Schools to what State Schools are, and must be, if founded in this kingdom in the nineteenth century—and the State is enabled to do this—as appears to those who do not look beneath the surface, reasonably and equitably—because it is in the position of making public grants of various kinds for Educational purposes.

3.—The whole history of the Committee of Council on Education, and of its antecedents, is an illustration of State tendencies, and of the manner in which these tendencies operate.

4.—Now the success of every attempt made in the direction of these tendencies is not only—in whatever proportion it may succeed—irreconcilable with the discharge of the office of the Church—but to acquiesce in arrangements for making any such attempt at all—however it may be disclaimed or disguised—is to open a door to a very subtle and a very powerful temptation.

5.—The position of the State is then *aggressive* in the matter of Education—as indeed it is *now* in respect of all matters ecclesiastical—and there can be no doubt that the aggression is assuming every day a more formidable aspect.

6.—The danger is much aggravated by the fact that circumstances combine to make the aggression *gradual*, *plausible*, and *palatable*.

  1.—It is *gradual* both from necessity and from policy, because it has much to encounter and to supersede before it can finally triumph.

  2.—It is *plausible* because it falls in with what appears to be the peculiar temptation of this portion of "the last time." It is a Christian's common temptation to bring the deductions of his reason into the place of "the Catholic Faith," and the dictates of his will into the place of Catholic obedience; and there have been many special circumstances of our religious and civil condition, as Englishmen, which have added power to the temptation. But there is something even more than this *now*. We are *encouraged now*—by what is to many of us high authority—to believe that, after all, there is no such thing in the world as objective truth, *i. e.*, no such thing in the world as "the Catholic Faith:" that religious belief is, after all, only matter of opinion; and that therefore, whenever any part of "the Catholic Faith" is denied, those who "hold the Catholic Faith" have no cause to be concerned about the denial, *because* it leaves unquestioned their "right of private judgment," and attempts no interference with their "religious liberty."

The peculiar temptation then of these days appears to be that men are *encouraged by authority* to "hear" themselves, and *not* to "hear the Church."

3.—The aggression is *palatable*, because to yield to it in one degree or another supplies resources which it might, otherwise, be difficult to supply.

7.—The position of the Church, in relation to the State, is a *defensive* position. The Church makes no aggression upon any of the rights of the civil power; she only claims to maintain and to deliver what has been committed to her by God.

8.—But the Church of England, in her collective capacity, is *not acting* upon this claim—rather she is surrendering outwork after outwork into the hands of the aggressor. When two parties, in the present relative position of the Church and the State of England, attempt to negotiate for the adjustment of their conflicting claims, the mischief is more than half done; for negotiation is inadmissible in *any* case where one party has received certain definite things to maintain and to deliver, and which are therefore not its own to surrender—or to compromise, as is the case with the Church—and when the other party insists upon what is nominally a compromise, but really a surrender, of these specific things—as is the case with the State.

9.—The conclusion appears inevitable, that, under such circumstances, one principal security against the operations which are gradually, but surely, undermining the fabric of "the Catholic Faith" of the Church of England, lies in the simple abandonment by the Church of all attempts to negotiate for the adjustment of claims which are in their nature irreconcilable—and in the adoption of systematic efforts within the Church herself, and removed from all pretext for interference on the part of the civil power.

10.—This principle, as applied to Education, leads directly to that which it is the purpose of this paper to propose, and which I beg very respectfully to submit for consideration to Communicants of the Church of England.

PROPOSAL—*That a vigorous and steady effort be made to raise funds for the establishment of a Training School, which shall be altogether independent of State assistance, and shall have no connection, direct or indirect, with the Committee of Council on Education.*

As a humble means of commencing the work in this part of England, I beg to say that I am ready to receive into the Vicarage House of East Brent, young men to be trained, and that I shall be able to accommodate a Master and Assistant and twenty Students.

To enable me to do this, I am compelled to make an appeal to Communicants of the Church of England for Donations and yearly Subscriptions.

The expenses will be—

1.—Articles of Furniture, Linen, &c., Books and School apparatus, with one or two little alterations in the House.
2.—Salary of Master and Assistant.
3.—Half the cost of maintenance of twenty Students.
4.—Wages and maintenance of additional Servants.

1.—Will be covered by the Donations.
2. 3. 4.—By the yearly Subscriptions.

It will be my endeavour to train Masters equal to the charge of all classes of Schools. Great care will be taken to make the whole character of the training such as will encourage the growth of habits of frugality and self-denial, and, as one principal means to this end, the dietary will be of the simplest and humblest description.

The Bishop of the Diocese will be respectfully requested to appoint three Clergymen annually to inspect the School.

GEORGE ANTHONY DENISON.

East Brent, Cross, Somerset, April 7th, 1851.

EDUCATION OF THE SIKHS.—It appears from inquiry that there is no foundation whatever for the belief so generally entertained of the universality of brooding apathy and ignorance among the Sikhs; in the Lahore division in particular a large number of children are at all times being instructed, and a strong desire for information prevailing among them, of which it was most important to take advantage. In the Lahore division there were found to be 1,385 schools, with a gross attendance of 11,500 pupils, or, on an average, about eight to each. In the city itself there are 28,692 houses, and 143 schools, with an attendance of 2,243 pupils; of these, 16 are devoted to the instruction of Mahomedan girls, and there are no fewer than 128 of these taught to read the Koran—the teachers are women. At Kussoor and its neighbourhood there are 102 schools, with 843 pupils. In Umritsir there are 15,206 houses, 40 schools, and 861 pupils. The population of the Lahore district amounts to about 2,500,000, and about one-third of a million (388,271) of both sexes are believed to be of an age fit for school; of these, 194,135 are males, of whom 11,500, or 6 per cent., are already at school—about two per cent. more receive private instruction—say 8 per cent. in all; a state of matters brought to pass by the Sikhs themselves, and eminently creditable to those we have been accustomed to call barbarians, but still leaving ample room for the labours of the schoolmaster. We could neither give with such minuteness nor accuracy the statements of education or population in Bombay, after an occupation of two centuries, as the Lahore board can give in relation to the districts around them, after a possession of less than three years. The magnitude, wealth, intelligence, and position of the city, pointed to Umritsir as one of the most fitting places for the commencement of the Government scheme of instruction. Mr. Montgomerie, the commissioner (a man indefatigable in his exertions for the cause of native improvement, to whom the whole was intrusted), selected Mr. Saunders, and the choice appears to have been most judicious for the carrying out of the scheme. 300*l.* was allowed at the outset, by Government, for the erection of a school-house, and 500*l.* a year for the maintenance of the schools. The teachers were all to be natives of the Punjab—the head master to receive 190*l.*, the first assistant to receive 70*l.*, stipends which, when the cheapness of living is considered, may be deemed most liberal; both these were to teach English as well as other branches. Persian, Oordoo, Hindee, and Sanscrit masters were also to be employed, at from 30*l.* to 90*l.* a year. Similar arrangements, on a scale proportioned to their wants, will be made in other cities so soon as the Umritsir scheme is at work. Lord Dalhousie seems to consider the vicinage of the schoolmaster quite as important at times as that of the Commander-in-Chief, by whose side Lord Ellenborough insisted the Governor-General ought to be.—*Times.*

To Correspondents.

W. T. Y.'s communication needs some modification; it will probably be inserted next month.

M. A.—We are obliged to decline communications of this kind.

Our Mathematical correspondence is unavoidably postponed till next month.

THE SCHOOLMASTER AT THE EXHIBITION.

In the reign of Charles the Second, a rivalry in commerce and in naval power produced feelings of dislike between the English and the Dutch, and led to contests in which a great sacrifice of treasure and of human life served no other purpose than the gratification of a spirit of national hostility. In 1666, however, the English valour achieved a victory, and furnished Dryden with part of the material for the construction of one of his best poems: the great fire of London happening in the same year, contributed another portion of his theme; and the poet gave to his production the appropriate enough title of "*Annus Mirabilis.*"

But if that year was wonderful, in which the wide-spread desolations of fire succeeded those of pestilence, and the calamities of war, entailed by clashing commercial interests, distressed the land, we have a remarkable and happy contrast in the circumstances of the present year, rendering it as truly an *Annus Mirabilis*. Never, until now, have the world's inhabitants been seen vying with one another in pursuits of peace, and exhibiting under one vast roof the manifold products of useful and ornamental industry. The event at once prompts the religious mind to think of Him who, from His throne of universal and everlasting dominion, "beholds all the dwellers upon earth." It is an event which moves our hearts reverentially to "say unto Him, What doest thou?" For we must perceive indeed that it is His work, that it has a most important meaning, and that in contemplating it we should "be not unwise, but understanding what the will of the Lord is."

Yes, "it is the Lord's doing, and it is marvellous in our eyes." For the dispersion of Babel was also the Lord's doing: and in that event began the separation of mankind into those countless sections, which have made the political geography of our globe such a vast medley of dissimilar organizations. And now, for the first time since the projectors of a mighty structure assembled in the plains of Shinar, have the nations of the world united in one common cause, and met, by their representatives, in one spot. God "hath made of one blood all nations of men, for to dwell on all the face of the earth;" but these nations are more or less widely distinct from one another in language, in religion, in politics, in temper, and in habits,—sufficiently so, to make us contemplate with astonishment the fact, that across sundering seas and mountain barriers the people of distant lands have converged to a reunion in the metropolis of Britain, as candidates for the honour of having promoted human interests, as joint contributors to the stock of human comforts and enjoyments. An occurrence like this, in which the rough aspect of national alienation and distrust is seen giving way, amidst the fusion of social elements which the warmth of a catholic sympathy has effected, should find us rejoicing in our world's apparent progress towards that period, when men "shall beat their swords into ploughshares, and their spears into pruning-hooks;" when "nation shall not lift up sword against nation, neither shall they learn war any more." In regarding this congress of the world as an indication of harmonious progress, we do not shut out of expectation all return of uncharitable jealousies, animosities, and conflicts, among the nations who now manifest their mutual regards in a manner so encouraging and hopeful; but, nevertheless, in this reunion of the human family, a chord has been struck, introductory to the development of a scheme of relative harmony, which, however it may be disturbed by occasional discords, or retarded by suspensions, will develop in due time a satisfactory completion, and fill the hearts of mankind with "the spirit of truth, unity, and concord." This, we doubt not, is the meaning of the event; and, with this meaning, it confers on our land a glory, whose brighter radiance, compared with the lustre of war's proudest pageantry, is like the excelling sunbeams contrasted with the gloom of night.

With such impressions did we come forth from that little sphere of local usefulness which the schoolmaster occupies, to look upon the world-embracing temple that has risen, like a realization of oriental fable, in the midst of us.

Among all the industrial arts which are therein exhibited, there are visitors, of course, chiefly interested in the examination of their respective favourite departments; but the schoolmaster, though he may have some peculiar preferences, arising out of the direction which his main study may have pursued, beholds in the Industrial Temple the apparatus of one vast schoolroom, all having connection with his professional interests and duties—all contributing or facilitating instruction in those elements of useful knowledge, with which it is his business to be conversant.

On our first visit to the Crystal Palace, we were obliged to be almost passive recipients of a general impression. To examine things in detail was impracticable, not merely from the multiplicity of objects requiring longer time than could be included in many visits, but from the novelty, the unwonted splendour and vastness, the strange mingled beauty and sublimity of the scene. Indeed, it was some time before we found the *coup d'œil* cease to be distracting; and even then, a confused sense of weariness was the effect of that straining of attention which we are forced by the overwhelming spectacle to maintain.

The building itself merits the admiration of all beholders, on account of the union of taste and economy which it exemplifies. Genuine taste is always an economist, disowning superfluity, and requiring that its objects shall possess something so worthy of the material or workmanship employed upon them, that there shall be no appearance of an extravagant expenditure of resources. But this structure is characterized by a very remarkable degree of inexpensive elegance. The short time of its erection, the convenient fabrication and transport of its parts, the small proportion of space required by its provisions for durability and drainage,—the economy secured in these respects, associated with the graceful lightness of so vast a fabric, rising ornamentally like a conservatory, adapting it to a situation which a fabric of the ordinary building materials, necessarily much more expensive, would have grievously disfigured—all this, and many other details of expediency and beauty, denote Mr. Paxton to be a genius of no ordinary merit. And, we say, let the schoolmaster, while reflecting on all this, receive and communicate the useful lesson, that true taste is economical; that its cultivation is not allotted merely to the wealthy; that its influence may be exerted by means such as the most ordinary schools afford; and that humanizing effects, forestalling a great amount of moral evil, may be produced by attention to the regularities, and decencies, and neat contrivances, for which there is much scope afforded both by the apparatus and the processes of school instruction.

And if the building itself be thus generally suggestive of reflection, which the schoolmaster may turn to a salutary account, in his efforts to promote the moral well-being of society, so is the noble purpose for which the building has been reared. It is a Temple of Concord, one in which homage is rendered to that design of the Almighty, whereby all mankind are regarded as ministers one to another in mutual instruction and beneficence. If all nations were equally supplied with the resources of livelihood, and of physical accommodation and enjoyment, where would be the scope which existing diversities supply, for the cultivation of that fellowship which makes the human race feel that they are "members one of another," and that "the eye cannot say unto the hand, I have no need of thee?" The Creator might have conferred upon all tribes the power of serving themselves in every needful way; but true happiness arises not from selfishness, but from sympathy, and true greatness is attained not by being ministered unto, but by ministering. All nations, therefore, though endowed with the same faculties, are not placed in the same circumstances, and, by reason of their varying conditions, manifest a corresponding variety in the developments of genius, and in the results of industry. Diversity of climate and soil presents a diversity of products to the hand of manufacturing skill; dissimilarity of habits occasions demand for peculiar means of accommodating those habits; and languages, differing in their idiom and structure, form so many differing moulds for the reception and formation of thought; so that each nation has its distinctive excellences, each has something to communicate by which another nation may be advantaged. As God has determined for every individual a providential calling, so has he determined for every community; but he cannot have designed that societies, in their emulation, should seek to overthrow or to injure one another. He has enstamped upon them diversities, and made those diversities necessitate an interchange of commodities, that isolation and disregard might be precluded, and that bonds of fellowship might be formed. The Great Exposition of Industry, therefore, is, doubtless, in its professed objects, in its ostensible character, most warrantable and praiseworthy. It recognises that there should be competition amongst nations, but forbids that there should be vindictiveness; it commends a striving for the mastery, but discountenances the insolence of pride; it places the olive of peace in the hand of every spectator, while it extends the palm of triumph to excelling skill; it shows us that in one country certain artistic capabilities have become traditional, which have in vain been attempted to be originated in another. And therefore should mankind agree to differ in those respects in which a wise Providence has established a difference; therefore should we "in honour prefer one another," in things wherein variety of national taste and temperament will ever resist the establishment of equality.

And here, again, may the teachers of youth perceive an important suggestion and a useful source of reference on the subject of emulation, as a means of success in school management. It cannot be denied that emulation has the sanction of Holy Writ, nor can it be denied that the feeling very frequently acts unfavourably on the moral constitution of its possessor, by stemming the fountain of philanthropy, and co-operating with selfish or malignant passions. In order to counteract this evil, diligent effort should be made to impress upon the youthful mind a remonstrance, which the Industrial Exhibition is so well designed to enforce,—a remonstrance which says to the possessor of any talent or superiority, " Who makest thee to differ from another? and what hast thou that thou didst not receive? Now, if thou didst receive it, why dost thou glory as if thou hadst not received it?" This is the consideration by which "all boasting is excluded," which teaches " every man not to think of himself more highly than he ought to think," because "God hath dealt to every man the measure" of power or privilege which hath seemed to Him good. In any honourable preeminence which we are enabled to maintain, we have a cause of thankfulness and a source of pleasure, but no reason for conceit or vain glory. And in any inferiority which, without fault of our own, we manifest, we may have cause of humility, perhaps, but certainly not of jealousy or discontentment. Let every man, "in his vocation and ministry," use his best efforts in cultivating the ability which God has bestowed upon him, endeavouring, above all things, that his words and works may give glory to his Creator and do good to his fellow-men.

(*To be continued.*)

ON LATIN ETYMOLOGY.

No. X.

THE change from *o* to an *e*, so familiar in the various derivatives from *ver-* or *vel-* ' turn,' has been overlooked in not a few words to the great detriment of etymology; and the neglect is the more remarkable as examples of this change meet one at every turn in the vocabularies of both Greek and Latin. The verb *expergiscor* ought to have been safe from all risk of error, as the forms *exporgiscor, exporrectus,* are found in all the older writers. But Lünemann (and Mr. Riddle copies him with all precision) derives *expergiscor, expergefacio,* and *expergificus,* from a verb *expergo;* this verb he writes in its own place with a hyphen, *ex-pergo,* thus referring us to *pergo,* and to this verb again he attaches the remark: probably from *per* and *rego,* consequently for *perrigo,* " to direct towards," (*hinrichten*). Without stopping to ask for a justification of the translation of *per* by " towards," we would observe that the form *exporgiscor,* while it has the sanction of the best MSS. in the older writers, furnishes in itself a thoroughly satisfactory explanation of its own meaning: *ex-por-rig-isc-o-r*, i. e., " out—forward —stretch—begin—I—self,"in which we have a graphic description of the act of waking. We have here taken the liberty of giving to *reg-o* as its primitive sense the idea of " stretching." Now *recta linea* is " a straight line," and as ***straight*** is only a participle of ***stretch***, we have thus a justification of the sense assigned to *rego.* Even those who contend for the translation " to rule " are in fact with us, as " to rule " in the sense of governing is but a metaphor from keeping in a straight line; and indeed the very word *rule*, originally a substantive, is from the Latin *regula*, "a rule." There has been unfortunately a disposition to draw *regere* away from its true meaning, in the feeling that it is derived from *rex*, *regis*. Now, if the words be really connected, the verb is the parent. But in fact there is some reason for thinking that *rex* is a vocable of oriental growth and the representative of the term *Rajah*.

The simple verb *perg-ere* also tells us by its meaning that it is connected with the preposition *por* or *pro* and not with *per*. In Mr. Riddle's dictionary the explanations of this verb are given under four heads. In no less than three of these occurs the translation, *to proceed*, a word which far more aptly defines the power of the verb than that which he has placed first, viz., the vague verb *to go*. A more correct explanation would have been " to go straight forward " or "straight on;" nor can we see any reason for the divisions and subdivisions of meaning which are given in Lünemann and his translator, as the translation we contend for would have been sufficient. We say this however with one limitation: the verb *porgo* might have been included under one head with *pergo*, and the active or rather transitive sense, as seen in *porge manum*, "stretch out or push forward your hand," should then have preceded the use of *pergo* for *pergo me*, as an intransitive verb. We cannot conceive how Lünemann (Riddle again copies him) was led to add to his article on *pergo* the remark that it is also used for *perago*, which he is pleased to translate, we know not on what authority, " to undertake " (unternehmen). We should have thought that this word *perago*, by virtue of the very preposition *per* would have signified " to bring to a conclusion " rather than " to begin." Besides, in the one passage which is quoted from Tacitus in support of the new doctrine— " prospere cessura quae pergerent "—the meaning " to proceed with," " to push on," is all that is needed.

The substantive *pergula* is, as the German writer correctly states, formed from *perg-ere*, precisely as *teg-ula* from *teg-ere*. Now the various meanings in which this word *pergula* is used are at once explained if we consider it to have signified that which *stretches out* or *pro*jects (from a building, &c.). Mr. Rich, in his excellent work called the " Illustrated Companion," translates it under his second head, by the term " balcony." This we believe to have been its true meaning, and the view is confirmed by what he has written and drawn under his sixth head, where he speaks of the vine being trained first vertically, and then after a certain height horizontally, some feet above the ground, and adds that this mode of training is still called *pergola* by the Italians. The idea of a balcony is sufficient for all the other passages quoted in the lexicons; neither need we, with Rich and others, suppose it to signify the room of which the balcony or projection is the roof. When signifying a room, it is rather that to which the balcony serves as a floor. In Pliny, *Fulvius cum corona interdiu e pergula sua in forum prospexisse dictus*, the idea of a balcony is clearly put forward; yet this, the leading sense, is unnoticed by Lünemann and Riddle.

In the substantive *perfuga* we have probably another example of the preposition *pro* simulating the form of *per*. In military practice, a man is a deserter who without authority leaves his post or cantonment, even though he does not go over to the enemy. Thus *perfuga* for *profuga* would be "one who runs off."

The verb *perhibere*, by the very fact that the lexicographers, Forcellini for example, give as synonyms for it, *exhibere*, *præbere*, is proved to have no connection with the little word *per*. Whether we regard it as deduced from *por-hibeo* or from *præ-hibeo* is of no great moment, as the prepositions *præ* and *pro* are little more than varieties of the same word. "To hold forward," and "to hold before one," are expressions for the same act; by holding a thing forward, we "show or exhibit" it; and a word that signifies "to show" readily acquires the closely-related meaning "to say," as is seen in the root *δεκ-* or *δεικ-*, whence in Greek *δεικ-νυμι*, and in Latin *dic-o*. Whether in the verb *percellere* and the substantive *perpendiculum*, *per* or *pro* be the real preposition, we will leave for others to consider. That the notion of *pro* is well suited to explain the two words is tolerably clear. This preposition often means "down," as in *projicere, procumbere, provolvi*, and *pronus*, opposed to *supinus*. Thus *perpendiculum* might well signify "that which hangs down," "a plummet," and the verb *percellere*, "to knock down." Yet as *per* in *perpend-* merely denotes accuracy or thoroughness, the notion of minute care may well pass to *perpendiculum*. But in the case of *percellere*, it should be recollected that *procellere* occurs in Plautus and probably in Propertius (iii. 8, 3). In the latter author it has the very meaning which commonly belongs to *percellere* and *perculsus*, viz. "knock down" or "upset." Servius moreover deduces *procella* from the verb *procello*, a derivation which seems to be satisfactory. We say *seems*, because we are not fully contented with any derivation of *procella*, which leaves out of view the two Greek equivalents *αελλα* and *θυελλα*.

If the little adverb *perperam* be regarded as a corruption of *properam*, it might well signify "hastily," and this word is often used as a euphemism for what is wrong. Forcellini himself translates the Latin adverb by *προπετως*, a word which Messrs. Liddell and Scott again translate by "hastily," "rashly." But once more we stop from a scruple suggested by the form of *pravus*, for *prav-* and *perp* are syllables very like to each other, and the notion of *pravus* is at once what we want for *perperam*.

Lastly, the adverb *perinde* is one which we have no hesitation in claiming as deduced from *pro*. In the first place, the best MSS. of Cicero, and other good writers, are actually in the habit of giving us *proinde* where our editors perversely adhere to the other form. In the next place, *perinde ut* is in sense a precise equivalent for *pro eo ut*, or without the pronoun *prout*. Thirdly, the two pronominal adverbs which signify motion from a place, *hinc* (from *hic*) and *inde* (from *is ea id*), are, as might have been expected, never attached to other prepositions than those which govern an ablative. Thus we have *deinde* or *dein*, *exinde* or *exin*, *subinde*, *proinde* or *proin*, *abhinc*, and *dehinc*. The form *posthinc* would have been a violation of this canon; but the word is supported only by the one passage in Virg. Æn. viii. 546;

and the reading which even here is now preferred, as by Wagner, is: *Post hinc ad navis graditur, sociosque revisit.*

We have purposely been brief on the present occasion, as our last paper ran to an undue length, and so, to our regret, was the means of excluding other more valuable matter.*

CLAUDIUS.

ON THE PERVERSION AND CORRUPTION OF WORDS.

(*Concluded from page* 160.)

THE notion of what does, and what does not constitute pedantry of diction seems in many minds to be very indistinct. After what has been remarked in our last paper, we trust our readers will not confuse our desire for the accurate usage of words of classic origin with a vain preference for such terms where they are wholly unnecessary. Take an instance from Milton, which goes beyond the limits of mere dignity. He speaks of the heavenly bodies, and

> "Their swift return,
> Diurnal, merely to *officiate* light
> Round this *opacous* earth, this *punctual* spot."
> *Par. Lost,* b. viii.

Or again, from a writer generally pre-eminent for simplicity of diction :—

> "Yet, because of the apostles' frequent and seasonable digressions, *proleptic* and *exegetic,* divers many handle the analysis after divers manners. To take, then, the discourse as it lies here together *abstract* from precedent and consequent."—*Archbishop Leighton, Sermon preached to the Clergy.*

There is surely a great difference between this apparently wilful verbiage and the unusual, though correct application, by the writer last quoted, of a word which even scholars have of late used with popular laxity.

> "He that gives rules of life, without first fixing principles of faith, offers *preposterously* at building a house without laying a foundation."—*Leighton, Lecture on Romans* xii. 3-12.

The idea of "putting the cart before the horse" is one which we often want to express, and which *is* fully expressed by the word *preposterous,* as shown in the above passage. This is evidently a word of which the vulgar, from ignorance, and scholars, from want of thought,† have lost the fine and distinctive sense; using it, as they do, to signify absurdity or extravagance of any kind. It would perhaps be difficult to find a better illustration of some of our previous remarks.

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* Mr. Talbot, among the many original and valuable suggestions in his "English Etymologies," has truly observed that the word *perspective* in our own language is a corruption of *prospective.* The reasons given by Mr. Talbot outweigh all that his Reviewer in the Quarterly has advanced in objection.

† How much more correct than the following usage of Barrow, who is generally accurate!

"How negligent in our services we have been, yea, how preposterously; instead of our due homage and tribute, we have repaid him affronts and injuries.—*Sermon on "Maker of Heaven and Earth."*

The use of technical language out of place (and even in place), has given much occasion to ridicule and complaint. "It is common with men," says Bacon, that if they have gotten a pretty expression by a word of art, that expression goeth current "though it be empty of matter." Or, as he quotes elsewhere, when speaking of a person's language, "hic ab arte suâ non recessit." To the same effect another great writer says that the fates of empires, &c. "sink into questions of grammar, when grammarians discuss them." "How often," observes Locke, "may we meet with religion and morality treated of in the terms of the laboratory, and thought to be improved by the methods and notions of chemistry." Indeed both thought and language are coloured by our own particular pursuit. Thus, Donne: "In the Bible some can find out alchemy." How differently do the very same words speak to a man's mind according to his trade or profession! Every language is liable to this accidental indistinctness: "Quis numerabit pulverem Jacobi," which to the divine is, "Who shall count the dust of Jacob?" would signify to the physician "Who will apportion the James's powder?" The "divide et impera," which says to the general or politician "Divide your enemies, and then command them, for then it will be in your power," would to the travelling musician (if our readers will for the nonce allow him Latin, and us rhyme) run as follows:—

"*Divide* a crown between myself and these,
My mates, and then *command* what tune you please."

Of the ridicule cast upon the technicalities of trades and professions, the following instance, out of many, may suffice:—

> "They dressed all their discourse in the language of the faculty; at meals they distributed their wine with a little lymph, dissected a widgeon, coholated their peas porridge, and amalgamated a custard . . . . eating was mastication and deglutition . . . . In dress, a suit of clothes was a system, a loophole a valve, and a surtout an integument; cloth was a texture of fibres spread into a drab or kersey; a small rent in it was cutaneous; a thread was a filament, and the waistband of the breeches the peritoneum."—***Arbuthnot's Essay upon an Apothecary.***

Though in the present day the number of words of classical origin rendered necessary by new discoveries, and introduced for scientific purposes, has undoubtedly greatly increased, we think that the improvement of public taste has done much towards preventing an ostentatious use of them; that this kind of pedantry prevailed far more formerly than it does at present. But where the sole object is accuracy, which we believe to be the case with many of our scientific writers now, still the ignorant or uninitiated will always find amusement in ridiculing what they do not understand, and, in the case of the professions, what they have to pay for. Scientific men, no doubt, often use a long train of words of art to prevent an incongruous mixture of popular and professional terms. An intelligent surgeon might prefer speaking simply of a bruise in the back of the head to calling it a contusion of the occiput; but if for any special purpose it should be necessary for him to pursue the description beyond the reach of popular phraseology, or general acquaintance with the subject, a consistent use of one style of language is better than an absurd medley; indeed where a description or an enumeration professing to be scientific breaks down for want of a regularly-formed word of art, the descent is ludicrous. Thus, to take the first instance that occurs to us, in climbing the mountain:—

"The argyroxyphium began to disappear as the botanists ascended, but they found the *Edwardsia*."—*Narrative of the United States Exploring Expedition.*

The fluctuations, and, if we may so speak, the mistakes of science in its earlier progress have operated widely in rendering language dull and equivocal. Very often the true etymological meaning of a word and its present usage are diametrically opposite. This appears to be the case with the word "phlegm." We are not sufficiently acquainted with the early history of medicine to be able to explain how a word properly signifying "flame," came to express a state of mind and body cold, heavy, and inanimate. Mark the use of the word in these lines of Dryden:—

"They only think you animate your theme
With too much *fire*, who are themselves all *phlegm*."

Again.

"They judge with *fury* though they write with *phlegm*."

In Shakespeare we find the word used in precisely the true sense to which Dryden opposes it.

"I beseech you hear the truth of it, be not so *phlegmatic*."
Merry Wives, &c.

Nor is this by any means the only case in which the uncertainty of science seems to have produced an uncertainty of general usage. It is thus, too, with the word melancholy in the same play, which is found in two different senses in the very same scene.

"I am glad he is so quiet, if he had been thoroughly moved, you should have heard him so loud and so *melancholy*."

Again.

"But indeed she is given too much to *allicholy* and musing."

By a strange inadvertancy, Mrs. Quickly has both the wrongly and the rightly spelt word put into her mouth.

When, in the "Midsummer Night's Dream," Shakespeare says,

"The moon, the governess of *floods*,
Pale in her anger, *washes* all the air,
That rheumatic diseases do abound,"

he no doubt uses it in its correct and original sense, the same in which, to the best of our recollection, he uses "rheum."

In Milton's time the word seems to have acquired its present signification.

"Dropsies and asthmas and *joint-racking rheums*."

Pains which were perhaps attributed by the faculty to some noxious fluid traversing the bones.

Most persons, unacquainted with the terms of medicine, would in the present day explain "catarrh" as simply another word for a cough, though, in fact, it is only an accidental accompaniment of it. Milton, to our surprise, appears, by the accompanying epithet, to sanction what is now the current meaning.

"Convulsions, epilepsies, *fierce catarrhs*."

We may here, indeed, observe, that the older terms of science, or rather the older usage of them, is occasionally more correct than the modern. This is the case with the word "nervous." When Bacon, in his natural history, uses the term "inlapidate," he expresses the phenomenon which he wishes to describe more correctly than he would have done by the more modern "petrifaction."*

The word spleen, except in medicine, is now nearly extinct; but in early usage it seems to have oscillated greatly in its sense, expressing two very different states of mind. It is sometimes used by English authors in the sense which the classics generally give it, "petulanti splene cachinno;" sometimes in a very different one: take two instances:—

"My presence may abate the *over merry spleen* which otherwise would grow into extremes."—*Induction to "Taming of the Shrew."*

"By the gods!
You shall digest the *venom of your spleen*,
Though it do split you."
Julius Cæsar.

The word is a favourite one with our great dramatist, who uses it, almost alternately, for wrath and merriment; and we think it not by any means unlikely that the extreme ambiguity of the word has occasioned its dismissal.

The more gradual the growth of a science, the more too (like this of medicine) it is of necessity continually presenting its terms to the uneducated from its close connection with common life, the more this result is likely to happen. Theology, with its greater pretensions to infallibility, and consequent shyness of self-correction, with its unvarying book of appeal, with a consecration of its words, which forbids them lightly passing into metaphor, keeps its disputes or its errors "intra muros," and whatever discussion there may be about the full meaning of "priest," "preaching," "episcopacy," "church," "regeneration," the combatants will not allow each other to wander very far from the etymon; nor is levity disposed to profane religious nomenclature by applying it to the purposes of ordinary life; though ignorant piety may, as we have formerly shown, for a time pervert it. Perhaps the greater danger to language from theology, especially if blended with enthusiasm, is, when it attempts to seize moral or general terms, to take them from everyday language and bestow an exclusive use upon them, as in the case of the word " call," to which the puritan sense is still found clinging in the following lines of Dryden :

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* It may also be here observed that sometimes a word in what logicians call its second intention, or as it is popularly used, is more true to its etymological meaning than in its first intention, or as a word of art, when it ought to be used the most accurately. Thus "discourse" would seem, looking at its derivation, to be applied far more properly to the erratic nature of general conversation, than to the inference of a conclusion from premises. Indeed, as popular practice generally, by giving a word too great latitude of application, causes indistinctness, so it is quite possible, that by being long used, merely according to philosophical definition, a word may be deprived of that legitimate extensiveness of signification, which its etymology would seem to allow it.

> "Those who to empire by dark ways aspire,
> Still plead "*a call*" for what they most desire."

Many have considered the too great exclusiveness and technicality of theological terms worthy of censure. Thus, after enumerating several of them, Swift, in his " Letters to a Young Clergyman," says,

> "We are often reproved by divines from the pulpit on account of our ignorance in things sacred, and perhaps with justice enough; however, it is not very reasonable for them to expect that common men should understand expressions which are never made use of in common life."

The terms of law (a profession which affects more of the " mystery" than either of those above mentioned), as they do not explain themselves, being often merely the first words of acts, have but slightly infected popular language, though attempts have been made to introduce them metaphorically and otherwise by writers of very high authority. In Spencer we have the terms " capias," " replevy," " livery and seisin," and Shakespeare's sonnets teem with legal references, metaphorically used; indeed, we so often find the

> *Ἵμερος εὐλέκτρου*
> *νύμφας τῶν μεγάλων*
> *Πάρεδρος ἐν ἀρχαῖς*
> *θεσμων,*

that many have inferred that some of our great poet's early days must have been spent in an attorney's office. Perhaps the cordial aversion of most men to law, its intricacies, its restrictions, and expenses, may have prevented its language from being acceptable. The passion of men generally for using terms of science is very remarkable. This arises, no doubt, partly from the sound of these terms; for they are, for the most part, sonorous—partly from their suddenly acquired validity—partly from the vanity of appearing knowing and scientific, as well as from the curiosity which attaches to every science, even amongst the ignorant and foolish, at its first discovery. Indeed, some so-called sciences owe their popularity, if not their very existence, to fortunately adopted terms. Take the case of phrenology, with its " amativeness," " gustativeness," " combativeness," words which we have heard till we are weary of the sounds. Uneducated persons soon caught up these, and found occasions, unconnected altogether with the science, in which they could use them with propriety. It is owing to these terms that phrenology is not, in the minds of most men, absolutely extinct.

Yet, in spite of this passion for scientific terms, the words which each individual science throws off into popular language are comparatively few. Of all the jargon of alchemy and astrology,[*] once so common, scarcely a trace is left; so, too, with the truest sciences. Indeed, when we consider that in the mental and bodily constitution of man, and in his social and political condition, there is something analogous to nearly every newly discovered process of nature, each fresh operation of art; that such analogies are, in fact, endless; it can only be owing to the popular ignorance of these facts in nature and science, and to the slow perception of similarity that our language is not crowded with metaphors derived from such sources. Very few words of even so popular a science as astronomy are used metaphorically in our ordinary language; "galaxy," "cynosure," "eccentric," "exorbitant,"[†] and perhaps one or two more.

But it is time to bring our remarks to a close. The indistinctness, the want of precision, the radical untruth of many English words, as they are used in common parlance; the utter loss of the special emphasis properly and originally belonging to many of them, are the evils which we have been endeavouring to remedy. It were indeed to be desired that the same word should present precisely the same idea to every intellect;—this is what philosophers have been often desiring, often impeding; this is one of those perfections which, though we know it to be unattainable, we should ever aim after. The varying impressiveness of certain words,—their disgustful or pleasing associations as addressed to different experiences, which form so large a part of the general effect of language on the mind;—these, as they are solely the result of accidental circumstances, we can never reduce to uniformity; but the fluctuations and indistinctness which arise solely from ignorance or carelessness, we may strive to remedy with some prospect of success.

In conclusion, it is impossible to overrate the importance of "words." It is quite a fallacy to suppose that there are self-adjusting powers in language which necessarily accommodate it to a people's wants. It has been shown that many words admirably expressive of certain thoughts, and which occur in our earlier authors, are now wellnigh lost; or, as another proof; let a new science arise, it offers a new term, "transition state," for instance, and men immediately discover that they have long been wanting an expression of the kind, and wonder how they have hitherto managed to get on without it. The fact is, thought itself has often slept for want of an exponent, as a means for its activity.

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[*] "The Mercurial, Martial, Jovial, Saturnine dispositions;" as Bacon says, "a man shall find in the traditions of astrology, some pretty and apt divisions of men's natures, according to the predominances of the planets, lovers of quiet, lovers of action, lovers of victory, lovers of honour," &c.—*Advancement of Learning.*

"The natures of the fixed stars are astrologically desperenced by the planets, and are esteemed *martial* or *jovial*, according to the colours whereby they answer these planets."—*Sir T. Browne's Enquiries into Vulgar and Common Errors.*

[†] For instance, he saith of his surprisal, "that it was a motion *eccentric* and irregular." "What then? His own *allusion from the celestial bodies* puts us in mind that irregular motion may be necessary on earth sometimes, as well as constantly in heaven. . . . Great worthies heretofore, by disobeying law, have saved the commonwealth, and the law afterward by firm decree hath approved that *planetary* motion, that unblamable *exorbitancy* in them.—*Milton, Eikonaclastes.*

The latter term is now nearly restricted in its application to the overcharges of tradesmen.

You may be content with the dead, trite, pointless phrases of the day; but depend upon it there is no greater difference, intellectually speaking, between one human being and another, than that which is made by the use of vapid, common-place, though grammatical, formulæ, and of a varied, forcible, discriminating style of expression.

To restrict words to their absolute and primitive sense would, we are aware, put a stop to all progress in language; but still there are certain laws within which they ought even in their deviations to be confined; and nothing can be more pitiful than an idiotic acquiescence in usages which can be proved to have had no rational origin.

J. F. B.

PRACTICAL HINTS FOR THE SCHOOL-ROOM.

BOTANY AND THE VEGETABLE WORLD.

(*Continued from p.* 176.)

LESSON II.

Before we enter, children, upon our second lesson on vegetation—which I trust we shall find quite as interesting and instructive as the first—I will see whether you remember what was told you of seeds and roots.

I. What did we say was the original meaning of the word Botany?
II. What do we understand now by the term?
III. How is a knowledge of plants useful to man?
IV. What is meant by the vegetable world?
V. How would you class vegetables?
VI. In what do plants differ from animals?
VII. In what respects do they resemble each other?
VIII. What are the different parts of a plant?
IX. What is there in the seeds of plants which strikingly proves the wisdom of God?
X. How has God provided for the sowing of different seeds?
XI. What is there peculiar in the seeds of the *ash, fir, thistle, sweet-pea, burdock, fungus,* and *dandelion?*
XII. How does the health of the plant depend upon the seed?
XIII. What are the sides or halves of the seeds called? (lobes or cotyledons.)
XIV. What useful purpose do they serve?
XV. What two offices do the roots perform?
XVI. What name is given to the main root? (caudex or stump.)
XVII. What are smaller roots and fibres called? (radicles and spongelets.)
XVIII. What is the plumule?
XIX. Give the names of the following roots:—grasses, turnips, potatoes, carrots, tulips, lilies, and onions.
XX. What are plants called which live one year; two years; many years?

Moral Application of the First Lesson.

As Almighty God often sends his children to the natural world to learn their duty, we shall not be surprised to see the *seeds* of plants specially urged upon our notice. They are mentioned in the New

Testament in three different places, and convey three distinct lessons of instruction. I. In one place they are used to illustrate and confirm the doctrine of the resurrection. II. In another to explain the nature and wonderful growth of the Christian church. III. In the third to show the character and condition of men here below and their fate hereafter. So that, in reality, they may serve to teach us the whole duty and end of man.

I. Now perhaps you may not see the resemblance which St. Paul saw (1 Cor. xv.) between mankind in general and the seeds of plants, and how the growth of the one argues the resurrection of the other. I will endeavour to explain it to you. You know that children and men, too, are commonly called seed in the Bible. The Jews were called the "seed of Abraham," and sometimes the "promised seed." Our blessed Lord is also called the "seed of the woman." The wicked are called the "seed of evil doers," and the good the "seed of the righteous." Seeds, then, we are, and are sown into the world by the great Husbandman. Now we cannot wonder if, in many respects, we resemble the seeds of vegetables. These have plainly a resurrection. They have two lives, and between these two lives come death and corruption. And I have explained to you how in seeds the condition of the second life depends entirely upon the first—how bad seeds produce bad crops. This is just the case with man. He also has two lives, and a death and corruption come between them. And further, his state of life hereafter will depend wholly upon his manner of life here. And as in the first life seeds depend upon others for their being and support, are liable to diseases of various kinds, are exposed to dangers, storms, cold and inclement weather, so that many never come to maturity, so man in this world depends entirely upon others for his being and support, is liable to various diseases of body and mind, is subject to many trials, troubles, and afflictions, and hence, says the Saviour, but "few come to perfection." They fail in the hour of trial, and fall away in the day of affliction. We have, children, our seed time, summer, and harvest, as well as vegetables. *Youth* is the *seed time* of life. In youth the mind is tender, and, with care, may be easily cultivated. *Manhood* is the *summer*, when the mind, endued with every virtue, should bloom and flourish. *Old age* is the *autumn*, or *harvest time*, when the seeds planted in youth should be ripe for the heavenly garner. The *grave* is the *winter*. In the earth we, like the seeds, are laid until the eternal spring,—the morning of the resurrection, when we hope to revive and flourish. As the seeds burst the shell which surrounds them, to give room to the vital principle within them, so our bodies, which are the mere husk or shell of the soul, which is the seed, must burst—must fall from us, and make room for the principle of life within them. They must be laid in the earth, must die, and turn to corruption, before we shall rise to newness of life—vigorous plants in the world to come. You see from this, that a dead-looking seed may fitly illustrate the doctrine of the resurrection.

II. Now we will see how they are emblems of the Christian Church. Our Saviour compares the Church to a grain of mustard seed, because, although it is the smallest of seeds, yet it grows a great tree, large enough to shelter the birds of the air. So the Church in its infancy was small indeed. It began with our Lord himself, who chose of his followers twelve apostles, who were all poor and despised Jews. It began in Judea, an obscure country, but little known and regarded by the rest of the world. It began in Galilee, a mean and ill-famed part of the same country; and at Nazareth, a poor little village. This was its origin; but though so small and obscure, in a few years this divine seed extended its roots and branches into all lands, and all nations and languages gathered themselves, as we do now, beneath its shade,—all submitted themselves to the yoke of Christ, and were received into his church. This grain of mustard seed became a mighty tree, which took deep root, and filled the land; the hills were covered with the shadow of it, and its boughs in beauty and extent were like the far-famed cedars.

III. In the next place all *Christians* are compared to seeds, which a Sower went forth to sow. Now, as you know the parable of the tares and wheat, try and answer me these questions: (See Matt. chap. xiii.)—

Who was the sower, and who were the seeds?
What is the field, and who are the farmers?
Whence came the tares, and what will become of them?
Who are the reapers, and where is the granary?
When will the seeds be sorted and separated?
How may we turn this parable to good account?

In this same chapter the *gospel* is compared to seed.

Who, in this case, would be the sowers?
What would be the ground? (men's hearts.)
What would be the stony place? What the way-side?
What the thorns? What the good ground?

THE TRUNKS AND BRANCHES OF TREES.

From the seeds and roots we come now to trunks and branches.

What is called a trunk in a tree is called a stem and stalk in a herb and small plant. Now there are as great varieties of trunks and stems as there are of seeds and roots. Some, for instance, are soft and pulpy, as the herbs; others are hard and strong, as forest trees: some are long and slender; others are short and thick: some are solid throughout; others are hollow inside: some again have branches; others, as palms and cocoa-nuts, have none: some have bark; others are without. Some stalks consist wholly of fibres, as flax, hemp, and nettles; some have a soft skin, with a spongy inside, as reeds and rushes; some have scaly skins; some entwine; some creep, as the strawberry; some are knotted and jointed, as the grasses and canes. And these different kinds of plants have each their peculiar habitation or places of abode. Like the animals, what will thrive in one place and climate would die in another. Hence some prefer the water, others the land; some the mountains, others the valleys. Some again flourish best in a clayey soil, others in a sandy loam; some in the heat and light, others in the cool and shade. Even the depths of the ocean have their vegetable productions, and sea-monsters fatten in submarine meadows. Nay, plants have been found on mountains among snows which never melt; in dark and dreary caverns, which shut out the light and almost the breath of heaven; in hot springs and craters of volcanoes; in the frozen north, and the scorching deserts of the south. Wherever animals are to be found, there vegetables of some kind exist. And where the stately tree and shrub will not thrive, there the humble lichens and mosses flourish: so kind is God to all his creatures.

Now, striking as is the variety of plants and their habitations, it is more astonishing to behold their nature and mode of growth. When we see a giant oak, which has braved five hundred winters, now spreading its mighty arms around, and offering shelter and protection to the beasts of the field, how little do we think of the acorn, its parent, and of its gradual growth from a tender stem to its present greatness. Listen a little while and I will endeavour to explain to you the growth of trees. Remember, there are *two distinct kinds* of trees in the world, which have very different modes of growth. All the trees which you see, and are likely to see, are in one and the same class; so if I explain the nature of one tree, it will serve as an instance for all. We will take this piece of common elder, and pull it to pieces, to examine its parts. If it is anything like a human body, we shall find a *skin*, *flesh*, *bones*, *blood*, *veins* or *blood-vessels*, or something corresponding with these. First, then, with a knife we will remove this rough, thin, outer covering. This is sometimes improperly called the bark. It is not the bark, but the skin (cuticle) of the bark which surrounds the plant, and protects all the delicate parts within from injury—from cold and wet, and the attacks of insects. This skin is a fine net-work, interwoven with fibres, and is porous like our skin. Through these little pores air and moisture pass into the heart of the tree, by means of little tubes, called air-vessels.* This outer skin forms the calyx, or little green cup which you observe outside flowers.

Suppose we remove this outer skin, beneath it we find a soft pulpy substance of a deep green colour. This is called *parenchyma*, and it is from this that the pulp of fruits and the colours of flowers derive their being. It is a substance composed of a tissue or frame-work of little cells united as you see in a honey-comb, and hence it is called *cellular tissue*. This, remember, is the principal part, the basis, of every vegetable. If we clear away this, we shall get at what is really the bark, which may be distinguished from the two former coverings by its being of a light yellow colour. The bark in trees consists of a number of thin layers: every year while the tree is growing, there is a new layer of bark deposited, and the last deposit is always nearest the wood, within the other layers. This inner layer is called *liber*, and it was on this layer of the tree, called papyrus, that the ancients used to write. (From *papyrus* we get our word *paper*, and *liber* is still the Latin for a *book*.)

The whole of the bark consists of long hollow tubes, extending from the roots to the topmost branches, and of pulp or parenchyma, mixed up with the tubes. Through these tubes the food passes which is taken in at the roots. It goes on and on to the leaves, where it is changed into sap (or vegetable blood), and it then returns to nourish the trunk and branches. If we take away this liber and bark we shall get at what is called the *wood*, the hard bony substance of the tree.

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* Hence it is that ivy and other climbing plants do great injury to trees by stopping up these pores.

This wood, though it seems so hard and solid, is really full of pores or holes like the bark, only they are pressed closer together. And the way it is formed is this: a tree in its first year has a soft pulpy stem like the garden herbs, but it has no wood. There is bark without, and pith within, mixed up with juicy pulp. In the next year the pith keeps to the centre, and the juice or pulp next the bark stiffens and hardens. Then another course of sap is laid between the last year's and the bark, which in the following year also hardens. And so every year a new deposit is laid between the last year's deposit and the bark, and every year the former deposits become drier and harder, in fact become *wood*. The longer the tree grows the larger its trunk becomes, because the more layers are deposited between the bark and wood, and as these layers increase the bulk of the trunk increases. The new wood is lighter and softer than the old, and is called *alburnum*. When a tree is cut down the growth of the wood of every year may be seen in the number of rings which are marked in the wood. A ring is added by the new wood every year as long as the tree is growing. In an ash tree these yearly rings are very plain; they are of a different shade of colour to the other wood. All our trees form their wood in the way we have just mentioned, the new wood being placed on the outside of last year's layer and next to the bark. Hence they are called *exogenous plants*, *i.e.*, plants growing without, to distinguish them from a different species of plants found in foreign countries, such as the cocoa-nuts, dates, palms, canes, &c., which are called *endogenous*, *i. e.* plants which grow within. Their mode of growth is this—a hollow stem shoots up to a certain height, in some such way as our corn and reeds, except that the stalk is much larger in girth. Then every year some wood—if you can call it wood, for it is nothing like our common wood; it has neither bark nor pith, and is full of large pores, as you may see in a piece of cane—whatever it is, wood or not, it is deposited within this hollow stalk, not in circular rings, but in an irregular way until it is full, and will contain no more. The stalk then has ceased to grow, and is extremely hard. (You shall know more of these stems by and by.)

There is one part more of the bark to consider, and that is the *pith* in the centre. You wonder of what use the pith can be. We are told that the buds and young shoots depend on the pith for their being and support; and that in those branches where the pith is wanting, no new shoots are made; so you see it is of great use. From the pith is also formed those curious little parts which you observe within the flowers. We have now gone through the different parts of the trunk of trees, and as the branches are of the same nature we need not inquire into them.

You have been told the meaning of *cotyledons* (seed lobes), *cellular tissue*, *endogenous* and *exogenous* plants. Now try and remember the following table :—

All plants, according to their nature, are either	VASCULARES (from *vas*, a vessel); or, CELLULARES (from *cellula*, a small cell).

Vasculares have all woody substance, *i. e.* woody fibres, spiral vessels, and cellular tissue, and are either . . .	Exogenous, which have two cotyledons; bark, pith, and woody fibres, and leaves with branching veins; or, Endogenous, which have one cotyledon generally; have also cellular tissue and woody fibre, but not what we call bark, wood, and pith; and have leaves with veins parallel like the grasses.

Cellulares consist wholly of cellular tissue, as mosses and ferns; they have no woody fibres. You will be told something more of these classes at a future time; so before we close this lesson we will see how the parts we have been considering are serviceable to man.

The *bark* of .	The oak is used in tanning leather. The cinnamon tree, which grows in Ceylon, is used as a spice. The cinchona, called Peruvian bark, is used as a medicine. A kind of oak, found in Aleppo, produces nutgalls. A species of oak which grows in Spain yields cork.
The *stems* or *stalks* of .	Celery, kale, lettuce, and other vegetables, used as a salad. The flax plant supplies us with linen cloth. The hemp is used in cords, ropes, and coarse cloth. Grasses, corn, &c. used for cattle, thatching, &c. Rhubarb, used in pudding. Turkey rhubarb, a medicine.
The *trunks* of	Trees used in general as timber for building. The oak and pine by shipwrights. The elm and ash by wheelwrights and coach-makers. Sycamore by millwrights. Walnuts by gunsmiths. Limes, beech, birch, laburnam, by carpenters and cabinet-makers. Willows in basket-making. Poplar, in toys. Alder, in lasts. Yews in mathematical instruments. Rosewood, mahogany, cedar, ebony, and box, in furniture and ornaments. A tree found in Jamaica, and other parts of America, yields logwood, used in dying.
The *sap* or *juice* of . .	Firs, larch, and pine produces rosin, turpentine, pitch, and tar. A South American tree is called caoutchouc, or India-rubber. The anil tree is called indigo. The cow tree, in South America, yields a rich supply of wholesome milk. The common plum and cherry trees which exudes from the bark is called gum. The Sicilian ash, and other trees, yields manna, a medicine. The acacia, in Egypt and Arabia, is called gum arabic. Holly and mistletoe produces birdlime. The American copal produces a useful varnish. The sugar-cane yields sugar.

The *pith* of .
- Trees, made into balls by chemists, called puff-balls, used for their lightness.
- A palm yields sago.
- Another palm produces the substance of which rice paper is made.

LESSONS ON THE RIVERS OF EUROPE.

(*Continued from p.* 167.)

Rivers entering the Mediterranean.

Rome, once the mistress of the world, is situated on the banks of the Tiber, about 16 miles from its mouth, and is divided by it into two unequal portions. The city is surrounded by walls, which have a circuit of nearly 15 miles, but a considerable part of the area which they enclose is occupied by ruins, gardens, vineyards, &c. Rome is celebrated for its numerous palaces, its public buildings, and churches. St. Peter's Church is considered the most beautiful in the world: it was 250 years in building, and cost nearly 20 millions sterling. The Vatican, the Pope's winter palace, contains more than 4000 halls and chambers; it is also distinguished for its collections of rare books and manuscripts, and for its sculptures and paintings—the masterpieces of ancient and modern art. The most stupendous monument of antiquity is the Colosseum, which, when entire, is said to have been capable of containing 100,000 persons. Among the other remarkable remains may be mentioned the column of Trajan, erected in honour of his Dacian victories, and the arch of Titus, erected by Domitian to commemorate the conquest of Jerusalem. Rome is the capital of the Papal States, or the States of the Church, and has a population of 180,000 persons.

9. The ARNO rises in the chain of the Appenines, flows through Tuscany, and enters the Gulf of Genoa about five miles to the west of the town of Pisa. Its length, including its numerous windings, is about 140 miles. It is subject to sudden overflowings; and its bed, in many places, has been raised almost as high as the adjacent fields. Embankments have been thrown up along the greater part of its course; but so suddenly does it sometimes rise, and with such fury, that no obstacle can oppose its progress. The territories watered by the Arno are the most productive and the most populous portions of Tuscany.

Florence, the capital of the Grand Duchy of Tuscany, is styled *la bella*, "the beautiful," from its delightful situation in the fertile valley of the Arno, which flows through the centre of the city. It is considered one of the finest cities in the world, and contains a splendid cathedral, with numerous churches, palaces, and public buildings. The galleries and museums of the city are exceedingly rich in sculptures, ancient and modern paintings, and historical collections. Florence has given birth to many celebrated men, among whom may be mentioned the renowned poet Dante, Leo X., and the eminent navigator, Amerigo Vespucci. Michael Angelo, a painter, sculptor, and architect of the first rank, is interred in the city. Population, 107,000.

Pisa, on the right bank of the Arno, a few miles from its mouth, is an ancient but decayed city. It has, however, many splendid buildings, and can boast of one of the finest marble bridges in Europe. It has a remarkable leaning tower which diverges some feet from the perpendicular, and is the seat of a university. On a farm, near the city, camels have been reared, it is said, since the time of the crusades. They were brought over to Europe by the Knights Hospitallers.

The celebrated Galileo was a native of Pisa: he was born in 1564. Population, 22,000.

10. The RHONE has its source under an ice-field, near Mount St. Gothard, in the Helvetian Alps, and at an elevation of more than 5000 feet above the sea. It flows through the canton of Valais, enters the eastern extremity of Lake Geneva, which it traverses in its whole length, and emerges at the city of Geneva. After leaving the lake, it forms the boundary between France and Savoy; it then enters France, flowing westwards to Lyons; then turns S., and falls into the Mediterranean by two great branches, forming between them the fertile delta called Ile de Camargue. The whole length of the Rhone is 530 miles, and its basin has an area of 30,860 square miles. It is the most impetuous of all the rivers of Europe, and is therefore sometimes termed "*the arrowy Rhone.*" On account of the rapidity of its current, it can only be navigated *downwards*, a distance of about 300 miles from its mouth. Steamers, however, ply between the Mediterranean and Lyons, but the navigation *upwards* is exceedingly slow. By means of canals the Rhone opens up communication to all parts of France: it thus is an important highway for the transport of the corn, wine, silk, and oil produced in the eastern parts of the country.

Lyons is situated at the confluence of the Saone and the Rhone. It is the second city in France, and the chief seat of the manufacture of silks, velvets, satins, &c. It has also numerous dyeing establishments, and manufactories of jewellery, gold and silver lace, cotton, woollen, and leathern goods. Population, 159,000.

Lyons is a place of great antiquity, and, under the name of Lugdunum, was the capital of Celtic Gaul. It is the birthplace of Claudius and Caracalla, two of the Roman Emperors; of Jussieu, a celebrated botanist; and of Jacquard, the inventor of what is termed the Jacquard-loom—one of the most important machines in use for the manufacture of *figured* materials in cotton, wool, and silk. A statue has been erected to his honour by his native town. He died in 1834.

11. The EBRO flows from the eastern side of the Spanish table-land, takes a S.E. direction, and empties itself into the Mediterranean, after a course of 420 miles. It is the only important river in the Peninsula that enters the Great Sea. The current is rapid, and its bed is encumbered, in many parts, by rocks and shoals. Boats can, however, navigate it to Tudela. It derives its importance from its utility in floating down timber from the Pyrenees, and in transporting grain from Saragossa to Tortosa.

Saragossa had at one time a considerable manufacturing industry, but it has almost all gone to decay. Its manufactures at present consist of coarse woollen cloth, shoes, and leather.

It is noted for its heroic defence against the French in 1808-9.

The siege lasted for nearly seven months; when, after a loss of about 6000 men killed in battle, and of more than 30,000 men, women, and children by famine, pestilence, and other causes, it surrendered to the French. Population, 40,000.

Tortosa, on the left bank of the Ebro, has some fine buildings, and several Roman and Moorish remains. There are salt-pits and quarries of jasper in the neighbourhood. Population, 16,000.

Rivers falling into the Atlantic Ocean.

12. The GUADALQUIVER* has its source in the south side of the table-land of Central Spain, and waters the plain between the Sierra Morena† and the Sierra Nevada.‡ Its general direction is S. W. by W. as far as Seville; it then turns nearly S., and, after forming several islands, flows through a marshy and unhealthy region into the Atlantic. It has a length of 290 miles, and is navigable as far as Seville.

The principal affluent on the left is the GENIL or XENIL, which rises in the centre of the Sierra Nevada, and in its course receives the DARRO.

Grenada is situated in a beautiful plain at the northern foot of the Sierra Navada, and at the junction of the rivers Darro and Xenil. It has an elevation of 2300 feet above the sea. This was the capital of the last Moorish kingdom in Spain, and contains the palace of the kings, called the Alhambra—one of the finest specimens of Moorish architecture in the world. It surrendered to Ferdinand, King of Spain, in 1492, after a siege of one year. The trade of Grenada has, of late years, greatly declined; formerly, it had considerable manufactures of velvets, silks, and ribands, with an extensive oil trade. It is the see of an archbishop, and has a population of 60,000.

Cordova, on the right bank of the Guadalquiver, once the splendid residence of Moorish caliphs, is noted for its Moorish remains, among which is a mosque of extraordinary splendour, now used as a cathedral. It has some trade in ribands, lace, and leather. Formerly it was noted for the preparation of goat-skins, called *cordovan*.§ Population, 20,000.

Seville, on the left bank of the Guadalquiver, is the capital of Andalusia. It contains some splendid buildings, among which may be mentioned the cathedral, on the site of the ancient mosque, and the Alcazar, or Moorish royal palace, which still preserves much of its original beauty. This city is the see of an archbishop, and has a university and several literary establishments. Its trade, which has greatly declined, consists chiefly in exporting lemons, oranges, oil, and wine. Population, 85,000.

San Lucar, the seaport of Seville, is at the mouth of the Guadalquiver. It has a considerable commerce; also tanneries, fisheries, and cotton manufactories. Population, 20,000.

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* Guadalquiver, or Wady-el-Kebir, means "*Great River.*"

† Sierra, a chain or ridge of mountains: hence Sierra Morena, "the brown or dark mountains."

‡ Sierra Nevada, "the snowy mountains."

§ Hence the term *cordwainer*, "a shoemaker."

FORM OF QUESTIONS.

Rome.

Where is Rome situated? Where does the Tiber fall into? Give its length. How far is Rome from its mouth? By what title is Rome often called? Why so? What is the circuit of the walls? How is the space taken up? For what is Rome celebrated? Mention the principal buildings. What is particular about St. Peter's Church and the Vatican? What is the Colosseum? What is meant by the Papal States?

9. Where does the Arno rise? What are the Appenines? What part of Italy does the Arno water? Give the length of the Arno. What is it subject to? How do they endeavour to prevent these? What is remarkable about the bed of this river?

What is Florence? How is it sometimes styled? Why so? For what is this city celebrated? Who was Dante? Leo X.? Amerigo Vespucci? What noted person is interred here? What was he? Can you mention any of his works? Where is Pisa built? What kind of a city is it? What can it especially boast of? What peculiar structure is found here? What animals are reared near Pisa? By whom were they brought to Europe? Who were these persons? What celebrated person was born in Pisa? What was he? Can you tell anything about him? When did he die?

And so on with the other heads.

W. M'L.

(*To be continued.*)

NOTES OF A BIBLE LESSON.

[For remarks on the method of giving Bible Lessons, Teachers are referred to the volume for 1848, page 344.]

THE CITIES OF REFUGE. Numbers xxxv. 9-13.

HEADS OF THE LESSON.

1. The meanings of the principal words.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

SPECIMENS OF NOTES ILLUSTRATIVE OF THESE HEADS.

1. Jordan — appoint—unawares—refuge—thither—avenger—manslayer—congregation—judgment.

2. The number of cities of refuge—their localities,* and why so placed—roads to them kept in good repair—bridges thrown across streams—sign-posts erected at cross roads—no weapons to be made in these cities—reason of this—to be well supplied with food and water—reason of their appointment—difference between a manslayer and a murderer—the *goel* † or avenger of blood—manslayer tried by con-

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* Show these on a Map placed in front of the class.

† Give instances of *Goelism*, either from sacred or profane history. See Gen. xxvii. 45; Exod. ii. 15; also, Burder's "Oriental Customs," page 332, (3rd Ed. Longman). *Goel* is the Hebrew word for *avenger*.

gregation—result of this: if guilty, put to death; if innocent, he must remain in the city—time he could leave it—consequences of breaking this rule.

3. (a) These cities Types of Christ: St. Paul refers to them in Hebrews vi. 18.

(b) Manslayer represents our state; we are sinners, transgressors against God's law. Christ is our refuge, to Him we are to flee.

(c) Manslayer not only to *enter*, but *abide* in, a city. So the sinner must not only apply to Christ for salvation, but must abide in Him; there is no safety but in Jesus.

(d) All offenders, *even strangers and sojourners*, might flee to these cities. So is it with the Christian salvation: all are invited; all may be saved: "Come unto me, all ye that labour," &c. (Matt. xi. 28; Rom. x. 12.)

(e) Manslayer safe, when in a city. So, "There is no condemnation to them which are in Christ Jesus." (Rom. viii. 1.)

(f) God teaches us to be careful of life, and to have a dread of the guilt of blood, by banishing the manslayer from his own city, and confining him to the City of Refuge.

(g) God often spoken of in Scripture as our refuge. See Deut. xxxiii. 27; Psa. ix. 9; lix. 16; lxii. 7; Isa. xxv. 4.

W. M'L.

SUGGESTIONS ON MAKING LATIN VERSES.

In all schools, whether great or small, where Latin is taught, great attention is paid to the making of Latin verses, and very much time is expended in the attempt to arrive at something like proficiency in this exercise. In larger schools it is almost incredible to what an extent this is carried, and with what little success as regards the majority of boys; and even in the smaller, so much of time and attention is bestowed upon this branch of education as to render it highly desirable that it should be as effective as possible.

A young boy has been reading Latin for some time, and is now supposed of an age to be initiated into Latin versification. He is set to make nonsense verses, it may be, as his elders have done before him; or Arnold's first verse book is put into his hands, and by its aid in a week or a fortnight he is able readily to put together an Hexameter or a Pentameter, the words being given. He is soon promoted to Bland or some similar work. He thrives: *fervet opus;* that is, provided his exercises are not like angels' visits, "few and far between." As time rolls on, our protégé can now in an hour write off twenty verses, where the English is set before him exactly fitted beforehand to make a verse.

At this stage he is considered equal to original composition, and May, or the Exhibition, or Waterloo, is given him as a subject on which to mature his ripening powers; or, under other advisers, he will be told to transform "The curfew tolls the knell of parting day," or "Breathes there a man with soul so dead," into elegant elegiacs. This will generally happen to him on what has generally been considered a half-holiday; but which, if he be a conscientious youth and of average ability, will be no half-holiday to him. He puzzles the whole afternoon and evening, and produces one line and a half, which even he cannot but distinguish from those of Ovid. Next morning in despair he patches up two or three more from a most mischievous book called the Gradus ad Parnassum, (a " step " which always leads in the opposite direction), and presents them to the master. The same process is gone through on every subsequent attempt, and disgust in the mind of the pupil is the only result. No further improvement is made, and all the time and patience expended in the matter is worse than wasted. This remark applies not of course to the boy who has great talent or taste, but to average boys who have but little of either—to ninety, that is, out of every hundred. For these it is we plead and it is our duty to do so.

We propose therefore to bridge over the gulf between Bland and Gray's Elegy for the average boy; and would suggest a simple plan, practised it may be by one or two, but certainly not by any means generally. It is to be hoped that it will be neither less useful nor less acceptable from being simple. At the period in question then, give the learner a Latin prose version of Æsop's shorter fables. Matter, (which he generally wants) will then be before him, and after no long time (experto credite) he will produce a very fair copy of verses. The subjects too will interest him, and he will work with his adviser and like the task, instead of becoming disgusted with the name of verse. By far the most profitable way, after criticizing his attempt, is to show him the same fable treated in the simplest mode in the same kind of verse. This encourages him much more than pointing to Virgil or Ovid, or even showing him a prize poem, and urging him to imitate them. He thinks such standards beyond his reach, and imitation hopeless. But different is the effect of a simple version with which he can sympathize. From it he derives real profit. Example being the best teacher, a specimen is offered of what is here meant. In an old copy of the fables, that which is numbered xxx. has been thus turned for this very purpose :—

CAMELUS.

Cornibus insignes tauros errare Camelus,
  Seque omni queritur succubuisse feræ ;
Nec placuit quòd inermis erat. Sibi cornua ut addat,
  Constituit tandem sollicitare Jovem.
Jupiter averso questus audivit ocello ;
  Stultitiam ridens ferre negavit opem ;
Non modo ferre negat, verùm, ne digna petenti
  Pœna absit, curto mittitur aure feras,
Hinc culpare, venit quod non mutabile, noli ;
  Quæ tibi fors confert, ista ferenda tibi.

The writer of this paper being very much interested in the education of the young, and not without experience, would gladly be allowed to make another suggestion. It is one which might be turned to account in every seminary in the kingdom, and is by no means unconnected with the preceding remarks. If it be so desirable that all persons who aim at a knowledge of Classical Literature should be practised in Latin or Greek versification, and should be taught to write verses in these languages, surely it would be no less desirable to create a taste for and a knowledge of English Poetry, by practising the writing of English verse. If it be answered, Poeta nascitur, non fit; it must be borne in mind that giving a taste is here spoken of, not the propagation of poets; that, as in Latin, he who has tried to write poetically, will know better what good poetry is; and that such an exercise, practised as it would often be after the days of pupilage are over, would be a healthy and it may be a sanctifying employment. To such an employment in after life, there are more encouragements than there are with Latin or Greek. Most people can understand and take an interest in English composition: comparatively few in other languages.

With this view let the young of both sexes be encouraged to take (for instance) a Psalm, and turn it, without reference of course to the received version at the end of the Prayer Book, into one of the usual metres. Both the pupil and teacher, even in the least promising cases, will be surprised to find that the task was one of less difficulty than they had imagined, and that a considerable proficiency and readiness may be attained by those who deemed themselves and were deemed by others incapable of a single couplet. In this way too will our pupils be more likely to fulfil the now common adage

——— Didicisse fideliter artes
Emollit mores;

and while dwelling on the beauties of the sweet Psalmist of Israel may also be blessed with something of his sublime ideas of God and his chastened ideas of self. C. P.

ON QUESTIONING.

In his examination of a class, the teacher is not less tested than his pupils. To multiply remarks in continuous instruction from point to point, or from subject to subject, demands neither the exact knowledge nor the vigilant readiness required to frame a series of questions, without pause or hesitation. Questions which admit of more than one form should be so framed that a ready answer may be given without preventing the exercise of the pupil's memory and judgment. A necessary concomitant to the proper construction of questions is the master's manner, which is not unfrequently communicated to the scholar; indifference in the one being met by negligence in the other; vigour in the one, by energy in the other. Ease of manner must not be suffered to languish into indifference, nor a vigorous style to lapse into haste. A quiet unambitious manner is both the most agreeable and the most successful.

There are, in questioning, three prevailing faults: namely, where the question is loaded with a redundancy of words and high-sounding phraseology; next, where the question is formed in a stiff pedantic manner, and where an excess of brevity renders it obscure; and lastly, where the question proposed is merely the first part of the sentence put in an interrogative tone, a pause being made that the concluding words may be given as the answer. A few examples will better illustrate each style.

Instead of the simple question, " What is the use of accent?" we hear, "For what practical purpose of oral communication is accent placed on syllables of words?" or, instead of a plain question about the course of a river, such an interrogation is made as, " Through what country does it roll on its way to the ocean?" In the next defective style, the expletive, " do" (not very elegant in affirmative sentences, but of unquestionable use in the interrogative) is, from an idea of simplicity, omitted in asking questions, as, for " What *does* ocular demonstration *mean?*" " What means ocular demonstration?" This pedantic style is also observable where the subject of the question is not placed between the parts of the passive verb, as, instead of " What *is* a word of five syllables *called?*" " What *is called* a word of five syllables?"

In the third faulty style, negligence, or want of professional aptitude, becomes somewhat apparent in such expressions meant for questions as the following. Instead of the obvious question, " By whom was the battle of Cressy gained?" " The battle of Cressy was gained by ——?" or instead of " Whom is Minerva said to have dashed against a rock?" " Minerva is said to have dashed against a rock ——?"

A question should never be prefaced by " tell me;" or " can you tell me?" the latter expression, merely asking the pupil his ability to answer, can strictly produce only a yes, or no. Although allowable and sometimes necessary, questions which can receive for answer only a negative or affirmative should be proposed but seldom, as the merit of correctness is then frequently gained by guessing, and the disgrace of ignorance and inability to answer, being less marked where the answer consists of but one of two monosyllables, never acts as an incentive to the negligent scholar. Except where whether, expressed or understood, is the commencing word, all questions which begin with a verb produce yes or no in the answer.

EXAMPLES: *Quest.*—*Was* London founded by the English?
Ans.—No.
Quest.—*Are* the ruins of Babylon still visible?
Ans.—Yes.
Quest.—*Does* a proper fraction multiplied by another proper fraction become less or greater?
Ans.—Less.
Quest.—Is the length of the longest European river greater or less than the height of the highest European mountain?
Ans.—Greater.

In the two last questions, whether is understood at the commencement, and the words, less and greater, respectively become the answer.

A very effective mode of testing a child's acquirements consists in framing a question in such a manner, that certain things are presumed as facts which have no actual existence; as,

What is the figure called which is formed by two right lines?
Name the sea-ports of Bavaria.
How far must parallel lines be produced before they meet?
Name the second personal pron. sing. neuter and obj.
In what country is Malta?
What is the difference between ten hundred and one thousand?

What part of eight are four times the quarter of the half of sixteen ?

With a liberal use of *what*, in interrogating regarding things or occurrences; of *who*, in persons; of *where*, in places; and of *when*, in dates; no one can fall into any flagrant solecism. It is besides worthy of remark that prepositions, such as—to, with, by, for, from, in, which precede what in the question, precede it, expressed or understood, in the answer. T. W. Y.

ON THE NATURE OF THE POSSESSIVE FORM.

The notion that the possessive form is contracted from the nominative case of the noun *plus* the pronoun *his*, appears to be gaining ground among schoolmasters. I think it necessary to call your attention to the subject, because the teaching of erroneous views on this and similar points of grammar, is apt to occasion considerable loss of time and much annoyance in our elementary schools and training colleges.

The origin of this misconception can be traced back to about the middle of the seventeenth century. A few writers at that time entertained the idea that the termination of the possessive case had been contracted from the pronoun *his*, and they made an attempt to restore what they conceived to be the full form. Judging from Charles Lamb's imitations of the "Anatomy of Melancholy," Burton appears to have been one of these innovators; so also, I believe, was Jeremy Taylor. But it is impossible to say decidedly which were the particular writers, without a reference to the first copies of their works, as the error has been corrected in all the modern editions. However, this form of the possessive never became an acknowledged part of English grammar, much less an established usage of the language; the idea was soon discovered to be a gross error in etymology, and was abandoned by all succeeding writers. And yet the use of this form by writers of the seventeenth century, is now adduced as an argument for the erroneous notion upon which that usage was based!

Persons who hold this view point also, in support of it, to those parts of the country where no other mode of expressing the relation of possessor and thing possessed is known among the common people, and they tell us we there see the form in its original uncorrupted state. They might add, that it is very common in every part of England to find such inscriptions as "John Stanhope his book," "Jane Hopkins her book," in volumes belonging to children and uneducated persons. This is evidently nothing more than a vulgar grammatical blunder, arising from the inability of untaught minds to comprehend the relations of words as expressed by differences of termination; for, it will be observed, people are always consistent in their use of the pronoun in such cases. They do not say, "Jane Hopkins *his* book," "The men *his* wages," as we should expect them to do if our present form of the possessive case had originated in the manner represented.

The expression "for Jesus Christ his sake," in the Prayer for all Conditions of Men, cannot, with any show of reason, be cited as a proof that this form was ever in general use, for it is the only instance in the whole of the Liturgy. The strict rules of grammar appear to have been intentionally violated in this case, in order to prevent anything like harshness in the pronunciation of the sacred name. It must also be borne in mind, that this prayer was added at the last review of the Liturgy (1661), at which time the use of this phraseology was sanctioned by the practice of distinguished writers.

If we go back to the time of our earliest English writers, we shall see what is the true nature of the possessive form. Let us take, for instance, the titles of some of Chaucer's Canterbury Tales.

"The Knightes Tale."
"The Milleres Tale."
"The Clerkes Tale."
"The Marchantes Tale."

In these cases, the termination *es* is added to the nominative singular of the noun to form the possessive. In the following instances, where the nominative singular ends in *e* mute, the *e* of the termination is cut out by syncope.

"The Reves Tale."
"The Freres Tale."
"The Manciples Tale."
"The Prioresses Tale."

The termination of the possessive singular was, then, distinctively *es*. It had been derived from the Anglo-Saxon, in which many of the nouns had *es* or *is* for the genitive singular; for the French nouns had lost their cases long before the Norman conquest, and, on being incorporated with the Anglo-Saxon, were subjected to its inflections as far as they remained. We have vestiges of the full pronunciation of the possessive termination in words ending in sibilant consonants; such as, "the *Church's* welfare," "the *fox's* den," "*St. James's* church," "the *horse's* collar," "the *princess's* coronet." It would certainly be much more rational to write such words with the old termination, instead of putting an apostrophe for a letter that is only omitted in writing, not in pronunciation.

The genitive plural of the Anglo-Saxon, together with all the other cases, except the genitive singular, appears to have been lost in the amalgamation of the two languages. Chaucer, and the other early English writers, invariably make use of the preposition *of*, to form a substitute for this case, evidently borrowing the usage from the Norman French. In the course of the century, however, following Chaucer's death, the deficiency was supplied by extending the termination of the possessive singular to the possessive plural. This step was the more natural as the same form was used to express the nominative plural. The Earl of Surrey is the first writer of any importance who employs the new form; but it was probably in general use before his time. It occurs in the poem of "Doctour Doubble Ale," supposed to have been written by John Skelton, who lived in the early part of the reign of Henry VIII.; for instance, in the following passage:—

"Now let us go about
To tell the tale out,

Of this good felow stout,
That for no man wyll dout,
But kepe his olde condicions,
For all the newe comyssions,
And use his superslicions,
And also *mens* tradycyons,
And syng for dead *folkes* soules,
And reade hys beade rolles,
And all such thinges wyll vse
As honest men refuse."

By this time, as may be seen from the first of the above instances, the *e* of the possessive termination had begun to be elided. As early as the time of Chaucer, it appears occasionally to have been dropped in pronunciation; for the rhythm of his verse at times requires the full syllable, and at others the elision. In the natural progress of our language, this pronunciation gradually became more general, and the *e* was also dropped in writing in the case of those words which ended in a consonant; those which ended in *e* mute remained unaltered in form, although they had been curtailed in pronunciation. The Earl of Surrey employs the full and contracted forms *ad libitum*, just as either suits the rhythm of his lines; availing himself of a license similar to that which Chaucer had previously taken. This will be seen from the following lines:—

"So cruel prison how could betide, alas,
As proud Windsor, where I in lust and joy,
With a *Kinges* son, my childish years did pass,
In greater feast than *Priams* sons of Troy."

From this time, the apostrophe began to be substituted as a sign of the syncope, and this orthography became settled in the reign of Elizabeth. Our present mode of writing the possessive plural is, of course, incorrect. It appears to have been adopted as a means of distinguishing between the two possessive forms.

The idea that the employment of the apostrophe was first occasioned by the intervention of some phrase describing the possessor, and preceding the thing possessed, is easily seen to be erroneous by a reference to the old English writers. It is true that in the instance, "Joan of Arc's death," the noun to which the possessive sign more properly belongs is the complex one, *Joan of Arc*; but if the only purpose of the apostrophe be to disengage the letter *s* from the single word *Arc*, then it seems to me a great wonder that the necessity for this separation was not sooner recognised; for Chaucer wrote such expressions without the apostrophe. Take, for instance, two more of his titles:—

"The Man of Lawes Tale."
"The Wif of Bathes Tale."

It is obvious that the apostrophe in these, as in the other instances, is neither more nor less than a mark of elision.

If it should be supposed that the *es* or *is* of the Anglo-Saxon genitive singular was derived from the pronoun *his*, it is only necessary to point out that the word *his* itself, and the other pronouns, *ours*, *yours*, and *hers*, have been formed by the addition of the same termination, and that the genitive singular of the nouns and pronouns in most of the Indo-European languages also ends in *s*. The termination of the genitive singular of the German is at present the same as that of the English was in the time of Chaucer, namely *es*; and there has for some time been the same tendency with the Germans to elide the *e* that has been noticed in the case of our own language. It is even customary in some parts of Germany to substitute the apostrophe for it, just as we do in English.

⁂ A learned paper on this subject, by Archdeacon Hare, will be found in the Philological Museum, vol. ii. p. 143. Camb. 1833.

Correspondence.

SCHOOLMASTERS' SALARIES.

Sir,—At a time when all parties are engaged in a species of rivalry for the extension and improvement of education among the poor, the readers of educational periodicals were scarcely prepared to find a school manager raising his voice against the improvement of the condition of the humble, hard-working, and ill-requited instruments by whom the education in question is administered. The last number of the National Society's " Monthly Paper " contains the views of such a gentleman, expressed with all the force of conviction as to their appropriateness. He states, as his deliberate opinion, that forty pounds per annum, where a house and garden are provided, is an ample salary for a schoolmaster in a rural district, sufficing to defray the charges of a family, on the simple conditions that substantial comforts only are to be provided for and sinful display avoided. Farther, he thinks it harsh and unjust to complain of the parsimony of managers who provide salaries to the amount above specified, and that it is the extravagant tastes of teachers which alone deserve reprehension, as making such a scale of remuneration insufficient. Surrounded as we are by abundant evidence that the " School Manager in Wales" will find little sympathy among the more liberal promoters of elementary education throughout the country, it appears needless to enter into anything like a formal argument against the proposed rate of salary to " a valuable and useful class." Public opinion has long demanded and government has given effect to the general wish, that a high tone of character, and a well-stored mind should rank among the qualifications of the schoolmaster. And can it be asserted, with any show of plausibility, that such men are adequately paid on the wages of the inferior class of artisans and labourers?

But there is no reason to fear, now that the necessity of a higher standard of instruction for the poor is recognized, that a short-sighted and mischievous economy will be tolerated, the inevitable result of which would be the degradation of the teacher. " The salaries asked and offered," ranging from 60*l*. to 80*l*., to which the " School Manager" adverts, while they are more than he deems an adequate return for the services of a "valuable and useful class," cannot but be regarded, the value and quality of the work performed being duly estimated, as very much below the fair remuneration to which properly qualified instructors of youth are entitled. And the patrons and promoters of schools who recognize the truth of this proposition, are fortunately a numerous and increasing class. The Education Committee of the Privy Council, too, has systematically recorded its approval of the more liberal rate of payment, by refusing any grant in augmentation of the salaries of teachers who do not already possess what the correspondent in the "Monthly Paper" regards as a sufficient salary. That committee refuses to augment *very low* salaries, while it has fixed no amount of emolument to which it will refuse an addition, on the fulfilment of certain conditions.

By this mode of administering the funds placed at its disposal, the Committee of Council refuses to relieve any locality of the duty of supporting a school, or to recognize the propriety of inefficient support. The effect of this policy has been, that not only have deserving teachers secured Government grants, but their previous salaries have in numerous cases been increased, or they have had residences provided, expressly for the purpose of meeting the requirements of the committee, as conditions of making a grant. Hence in very many instances it is gratifying to find that the masters of elementary schools are in the receipt of salaries which afford them the means of supporting a family in comparative comfort, of stocking their shelves with books, the indispensable tools of their profession, and of enjoying a little necessary change of scene at the annual vacation. The recipients of such incomes will be found to possess no greater share of the conveniences and decent appendages of a home, than fall to the lot of the more thrifty and well-paid artisans, large numbers of whom receive from 2*l.* to 3*l.* per week, and in some employments even higher wages.

Without disparaging in any degree the merits or the virtues of the teacher quoted by "School Manager" as an exemplar to the profession, it may fairly be remarked, that such an illustration carries no more weight, as a case for imitation, than is furnished to another profession by the example of a certain country vicar, rich in all the virtues that could adorn the character of a Christian pastor, and who was "passing rich on forty pounds a year."

I will conclude this letter with an extract from a living writer of eminence: "The schoolmaster's occupation is laborious and ungrateful; its rewards are scanty and precarious. He may indeed, and he ought to be, animated by the consciousness of doing good—that best of all consolations—that noblest of all motives. But that, too, must often be clouded by doubt and uncertainty. Obscure and inglorious as his daily occupation may appear to learned pride or worldly ambition, yet to be truly successful and happy, he must be animated by the spirit of the same great principles which inspired the most illustrious benefactors of mankind. * * * If such are the difficulties and the discouragements, such the duties, the motives, and the consolations of teachers who are worthy of that name and trust, how imperious then the obligation upon every enlightened citizen who knows and feels the value of such men, to aid them, to cheer them, to honour them, to endeavour to elevate their station, to enlarge their usefulness, and to raise the character of the schoolmaster among us. Thus shall we best testify our gratitude to the teachers and guides of our own youth, thus best serve our country, and thus most effectually diffuse over our land light, and truth, and virtue. * * * * But to raise up such a body of men, as numerous as the wants and the dignity of the country demand, their labours must be fitly remunerated, and themselves and their calling cherished and honoured."

I am, Sir,
Your obedient Servant,

May 28, 1851. JUSTITIA.

[We insert JUSTITIA's letter, though we cannot unreservedly adopt his views. The letter of a School Manager, which he refers to, alludes to the difficulty of obtaining even as much as £40 a year " in a rural district where there are no resident gentry, nothing but poor farmers, and half-clad, half-fed labourers." This difficulty JUSTITIA does not attempt to meet. Good teachers ought to be well paid; and school managers who cannot afford to give higher wages than the labourer can get, must be content with inferior masters.—ED.]

ON THE NEGLECT OF ARITHMETIC IN HIGHER SCHOOLS.

SIR,—In your May number you have called attention to a subject of which the importance can scarcely be overstated. The notice therein of Whewell's work on a Liberal Education is certainly not the least valuable part of your last journal. The only wonder is that the incredible truths alluded to should have to be discovered and exposed by a man of such gigantic powers as the Master of Trinity. At first sight, and to many it would seem, I have no doubt, that to urge on the masters and scholars of this great kingdom the necessity of a thorough knowledge of arithmetic was, if not unnecessary, at all events beneath the dignity of so great a genius. And yet in reality it was not so. The subject cannot be too strongly impressed upon the minds of all who are engaged in tuition in what are called the better class of schools: no eloquence can be misapplied.

Nothing that I can say professes to add at all to the weight and authority with which Dr. Whewell has spoken. And yet this letter may serve to keep the matter one month longer before the attention of those concerned. I have been engaged several years, both in the University and out of it, in preparing young men and boys for college and for professions, and have had by this time a fair amount of experience; and I can scarcely say that I have met with more than a single instance of a young man being *thoroughly* conversant with arithmetic. In national schools, and the smaller grammar schools, this subject, justly characterized by you as the very foundation of all sound mathematical knowledge, is thoroughly taught. In the larger grammar schools, in most of the proprietary schools, and in all the great public schools, the ignorance of most boys in this matter is simply incredible. When it is taught, the hours that are spent in it are at great distances, and but little is really learnt. By-and-by it is time to be turned into algebra, and that little is soon forgotten in the marshalling of pluses and minuses. The young candidate for university honours—yes, the candidate for college and university honours, and for professional renown, often knows not how to set about a sum in Interest, Discount, Profit and Loss, or, it may be, even in Practice. He considers and avows that such things belong only to bankers' clerks, tradesmen, and "such like people;" and are beneath the notice of the future graduate, rector, magistrate, or Queen's counsel. Many a man has discovered in after life, even if he does not find it out at college, that it is hard to build before you have laid the foundation; many a curate has found how much more useful he would have been in his national school, if he had had more knowledge of figures; and many a solicitor and barrister has had to make up for the neglect when they could ill afford the time, and have made it up but indifferently after all. Let it no longer be said, that the best educated portion of a commercial nation know scarcely anything of figures, and that the graduates of the most scientific people of the world have neglected to lay the foundation of all science. If, sir, you admit these remarks into your pages, you will oblige one and may profit many a

PRIVATE TUTOR.

May 20, 1851.

Notices of Books.

THE CLASSICAL GAZETTEER; A DICTIONARY OF ANCIENT GEOGRAPHY, SACRED AND PROFANE. BY WILLIAM HAZLITT. 8vo. Pp. 378. (*Whittaker & Co.*)

A VERY copious, and, so far as we have tested it, a very correct alphabetical list of places named in ancient geography. It is much more complete than anything that has hitherto been published for school use, and will be found a most useful "finding index" to any set of maps. The descriptions, of necessity, are brief; the modern names are appended where they have been identified.

We would suggest the marking of the quantities in any future edition.

NORMAL CHART OF THE ELEMENTARY SOUNDS OF THE ENGLISH LANGUAGE.

READING IN PRIMARY SCHOOLS; WITH DIRECTIONS FOR USING THE NORMAL CHART, &C. BY W. J. UNWIN, M.A., PRINCIPAL OF THE TRAINING INSTITUTION OF THE CONGREGATIONAL BOARD OF EDUCATION. (*Ward and Co.*)

THE attention which of late years has been devoted to the principles of teaching, while it has developed a very great amount of improvement in most departments of instruction, still leaves the schoolmaster desiderating better and more ample direction in the art of teaching to read. The slow progress and inferior quality which characterise the reading in most of our elementary schools, have been so frequently commented on, that effort towards a remedy has been sufficiently prompted, and in many instances exerted. But it should be borne in mind, that among those who endeavour to impart effectual help in this matter, there are two who must necessarily fail. For it is in knowledge of the philosophy of language, *united to* experimental acquaintance with the powers and propensities of the youthful mind, that ability to make the requisite improvement resides; and he, therefore, is inadequate, who theorizes in private study on the principles of language, but is not practically conversant with the business of the schoolroom; he also is inadequate, who, though daily occupied in the instruction of children, has not thoroughly instructed himself in the philosophy of speech.

Our attentive examination of Mr. Unwin's Normal Chart, and its accompanying pamphlet, has induced us to presume that he has fulfilled the two conditions jointly necessary to success. He evinces, we think, the requisite skill resulting from long contact with the youthful mind, and a careful analysis of the principles of language. In the next number of the Journal, however, we hope to recommend his production by a few detailed evidences of its merit; and meanwhile we state generally our persuasion, that Mr. Unwin has supplied one of the most useful schemes which modern improvement has yet devised, for facilitating, and otherwise duly conducting, the acquirement of the art of reading in our primary schools.

AHN'S PRACTICAL AND EASY METHOD OF LEARNING THE FRENCH LANGUAGE. FIRST COURSE. TRANSLATED FROM THE 39TH GERMAN EDITION, BY J. P. HALL AND THOMAS HALL. (*Bateman.*)

A TRANSLATION from a German book which has had a wide and a deserved popularity. The principle, as stated in the preface, is this: "It imitates as much as possible the natural way in which children acquire the first knowledge of their mother tongue, and prepares for the study of a methodical grammar and more advanced reading. Though the learning of rules is excluded, yet the work itself has not been planned without them, but follows a progressive method founded on definite principles." The book begins with the nouns and the articles, and goes on progressively through the other forms of grammar, constantly reproducing under other combinations the words which have been already learnt.

We know from experience that this is a most interesting way of teaching a language; from the very first moment the pupil feels that he has learnt something that he can make use of, and when he has mastered even the 72 pages of this little book he will have a copious vocabulary of words, and be able to hold a conversation on ordinary matters. For young children especially, whose minds cannot grasp the meaning of a rule, or apply one that they have learnt, it is peculiarly adapted. The system is the same as that adopted by Ollendorff; but the book is less cumbersome and more systematic.

GENERAL EXAMINATION OF TRAINING SCHOOLS.

EASTER, 1851.

HOLY SCRIPTURES.

Three Hours allowed for each Paper.

SECTION. I.—1. State briefly the subject-matter of each book of the Pentateuch.

2. Describe the kingdom of Solomon, with a map.

3. Describe the character of the following kings, and name the chief events in their reigns:—Asa, Jehoshaphat, Uzziah, Ahaz, and Jehoiakim.

SECTION II.—1. Give an account of the prophet Isaiah, and state concisely what knowledge of Christ could be derived from his book.

2. When did these prophets flourish: Hosea, Nahum, Micah, Zephaniah, and Zachariah? State briefly the subject-matter of one of their books.

3. Enumerate the nations which invaded Palestine under the Kings, and quote some of the most remarkable prophecies concerning Edom, Nineveh, and Egypt.

SECTION III.—Prepare the notes of a lesson on—

1. The events of the week preceding the crucifixion of our Lord.

2. The different ways in which our Lord answered questions proposed by his disciples, by inquirers, and by cavillers; or,

3. The peculiar characteristics of Christian morals.

SECTION IV.—1. Give the meaning of the following expressions:—Kingdom of Heaven; Mercy seat; Atonement; Justification; Nazarite; Proselyte.

2. Give the context and meaning of the following passages:—

"Blessed are the poor in spirit."

"For I am a man under authority, having soldiers under me; and I say to this man, Go, and he goeth; and to another, Come, and he cometh; and to my servant, Do this, and he doeth it."

"Make to yourselves friends of the Mammon of unrighteousness, that when ye fail they may receive you into everlasting habitations."

"For David is not ascended into the heavens; but he saith himself: The Lord said to my Lord, Sit thou on my right hand, until I make thy foes thy footstool."

SECTION V.—1. State the subject-matter of the first twelve chapters of the Acts of the Apostles.

2. What places in Europe are stated in Scripture to have been visited by St. Paul? To which of them were epistles addressed by him? State fully the subject matter of one of these epistles.

3. Enumerate the companions of St. Paul, and write a full account of one of the most distinguished.

CATECHISM, LITURGY, AND CHURCH HISTORY.

SECTION I.—1. Write out the definition of a Sacrament from the Articles and from the Catechism.

2. Show what is the office of Sponsors in the words of the Catechism.

3. What is said in the Catechism concerning the duty and benefit of Prayer, and in what appropriate part of the Catechism does it occur?

SECTION II.—1. Write out the order of the Daily Service for Morning and Evening.

2. Write out three of the Collects for particular Sundays or Holidays, and show their appropriateness.

3. Explain the title "Common Prayer," and give a brief historical account of the Book of Common Prayer, mentioning (*a*) the sources from which

it was originally compiled, and (*b*) the changes which it has undergone, with dates.

SECTION III.—1. What is asserted concerning the Church in our Articles? Give proofs and illustrations from Holy Scripture.

2. How far, and on what grounds, is the authority of General Councils recognised in our Articles? Name the first four General Councils, with dates, and give a full account of the earliest.

3. Write out the Article on Justification, and prove it from Scripture.

SECTION IV.—1. Give a full account of Augustine's mission, and its consequences.

2. Against what portions of contemporary ecclesiastical doctrine or usage was the English Reformation chiefly directed?

3. Describe the progress of the Reformation in Scotland.

SECTION V.—1. What do you mean by the Eastern and Western Churches? What caused their separation? What nations at this day belong to the Eastern Church?

2. Give a brief historical account of the Huguenots.

3. Explain from history the fact that Holland is at this day a Protestant, and Belgium a Roman Catholic country.

ARITHMETIC.

SECTION I.—1. Explain as you would to a Class, the Rules for *carrying* in Addition, and for *borrowing* in Subtraction.

2. Multiply 971 by 386, and divide the product by 197. Give a reason for each principal step in the process.

3. Explain the system of Notation in ordinary use, and compare the advantages of the common scale with those of any other scale that might be adopted.

SECTION II.—Work one of the following sums as a question in Mental Arithmetic, and explain the process, as you would to a Class:—

1. How long will 9*l.* 2*s.* maintain a poor person who spends 3*s.* 6*d.* a-week?

2. What would be the cost of 7 cwt. 1 qr. 10 lb. 8 oz. at 2*l.* 6*s.* 8*d.* per cwt.?

3. A corn-dealer buys 50 quarters of oats for 34*l.* 13*s.* 4*d.* At how much per bushel must he retail it, in order to gain 25 per cent. by his bargain?

SECTION III.—1. If the rents of a parish amount to 2,340*l.* 17*s.* 6*d.*, and a rate of 137*l.* 10*s.* 8*d.* be granted, what sum will be payable upon an estate of which the rental is 143*l.* 9*s.* 10*d.*?

2. If 3 lb. of tea be worth 8 lb. of coffee, and 12 lb. of coffee worth 31 lb. of sugar, what quantity of sugar may be had for a chest of tea weighing 28 lb.?

3. If 248 men, in 5 days of 11 hours each, can dig a trench 230 yards long, 3 wide, and 2 deep, how many yards of a trench, which is 5 feet wide and 5 deep, should be dug by 17 men in 12 hours?

SECTION IV.—1. Write out a rule for finding the least common multiple of two or more numbers.

Add together, $3 + \frac{1}{7} + \frac{1}{8} + \frac{4}{9} + \frac{5}{24} + \frac{7}{12}$.

2. Reduce to their most simple forms the fractions,

$$\frac{7\frac{1}{7} - 3\frac{1}{8}}{7\frac{1}{8}} \qquad \cfrac{2}{3 + \cfrac{4}{5 + \cfrac{6}{7}}} \qquad \text{and} \quad \frac{24{\cdot}075}{7{\cdot}5}$$

3. What forms of vulgar fractions are reducible to equivalent *terminating* decimals? Show that all other fractions may be represented by *circulating* decimals. Find the fraction equivalent to

·34600970097····

Section V.—1. Extract the square root of 1369·7401, and the cube root of ·000,000,042875.

2. What ready money will discharge a debt of 1,377*l.* 13*s.* 4*d.*, due 2 years 3 quarters and 25 days hence, allowing discount at the rate of 4⅜ per cent. per annum?

3. If the length of a rectangular tank be 7 ft. 4½ in., the breadth 5 ft. 11⅝ in., and the depth 4 ft. 7⅛ in., how many gallons of water will it hold, supposing each gallon to measure 277¼ cubic inches?

Section VI.—1. Set down a Dr. and Cr. account between a grocer and a baker, with five items on each side, and balance it.

2. Explain, as you would to a pupil teacher, the nature of an ordinary partnership, the necessity of keeping a Dr. and Cr. account between each partner and the firm, and the principle upon which the profits should be divided.

3. A. employs a capital of £500 in trade, and at the end of three years takes into partnership B., who advances a capital of £800: four years later, A. and B. are joined by C., with a capital of £1000: at the end of twelve years from the commencement of the concern, they take stock, and find the whole gain to have been £3000. What portion of the profit should be credited to each partner?

MENSURATION.

Section I.—1. Show that the area of a rectangle may be represented numerically by the product of two adjacent sides. Find the area of a triangle in terms of any two sides and the included angle.

2. In a square, the area of the inscribed circle is equal to half the area of the circumscribed circle. In a regular hexagon, the former is equal to three-fourths of the latter.

3. A cylindrical cask holds 180 gallons of beer, and the diameter of its end is equal to two-thirds of its height. Find its dimensions—a gallon being equal in volume to 277¼ cubic inches.

Section II.—1. Show how to find the difference of true level between two places at a considerable distance from each other.

Work an example with four intermediate stations.

2. Describe a Theodilite, and show how to survey a field, in the shape of a polygon, by means of the Chain, Cross, and Theodilite.

How are inclined lands measured?

3. The area of a triangular field, A B C, is 11a. 2r. 16p., and one side, A B., is 2374 links long. Divide it into three, by lines parallel to B C, so that the parts may measure respectively 5a., 4a., and 2a. 2r. 16p.

GRAMMAR AND ENGLISH LITERATURE.

Section I.—1. Give definitions of a Noun, Verb, Participle, and Adverb, and illustrate them by examples.

2. Give examples of the Participle used as a Noun, an Adjective, and as employed to form the present and past tenses of active and passive Verbs.

3. Enumerate and account for all the different modes in which English Adjectives may be compared, with an example of each.

Section II.—1. Correct the following sentences and explain their errors:—

a. Much does human pride and self complacency require correction.

b. Mans' happiness or misery are placed in his own hands.

c. From the character of those who you associate with will your own be estimated.

d. Between you and I things will not happen as they expect.

2. Parse the words printed in italics:—

In sooth, I know not why I am so sad;
  It *wearies* me; you say it wearies you;
But how I caught it, *found* it, or came by it;
  What *stuff* 'tis made of, whereof it is *born*
I am to learn;
And such a *want-wit sadness* makes of me,
  That *I* have much *ado* to know *myself*.

3. Analyze the construction of the following passage, so as thoroughly to show the connexion of the several clauses:—

High on a throne of royal state, which far
Outshone the wealth of Ormus and of Ind,
Or where the gorgeous East with richest hand
Show'rs on her kings barbaric pearl and gold,
Satan exalted sat, by merits rais'd
To that bad eminence; and, from despair
Thus high uplifted beyond hope, aspires
Beyond thus high, insatiate to pursue
Vain war with Heav'n.

SECTION III.—Write a simple paraphrase in prose of the following passage: (italics refer to next section)—

Whiles that the armed hand doth fight *abroad*,
The *advised* head *defends* itself at home:
For *Government*, though high, and low, and lower,
Put into parts, doth keep in one *concert*;
Congreeing in a full and natural close,
Like *Music*.
Therefore doth Heaven divide
The *state* of man in divers *functions*,
Setting *endeavour* in *continual* motion;
To which is fixed, as an aim or *butt*,
Obedience: for so work the honey bees;
Creatures, that, by a rule in nature teach
The *act* of order to a peopled kingdom.
They have a king, and *officers* of sorts;
Where some, like magistrates, correct at home;
Others, like *merchants*, venture trade abroad;
Others, like *soldiers*, armed in their stings,
Make *boot* upon the summer's velvet buds;
Which *pillage* they with merry march bring home
To the tent royal of their *emperor*:
Who, busied in his majesty, *surveys*
The singing masons building roofs of gold:
The *civil* citizen *kneeding* up the honey;
The poor *mechanic* porters crowding in
The heavy burthens at his narrow gate;
The sad-eyed justice, with his *surly* turn,
Delivering o'er to executors pale
The lazy yawning drone.

SECTION IV.—Give the derivation and literal meaning of the words printed in italic in the last foregoing passage.

SECTION V.—1. Mention points of comparison between the modern English and Anglo-Saxon languages.

2. State and account for the changes in the English language between the times of Chaucer and Shakspeare.

3. What were the principal literary productions of Lord Bacon—Lord Clarendon—Dryden—Swift—Pope—Addison—Dr. Johnson—Gibbon—Burke?

Give a full account of one of the works named in your answer.

HISTORY.

SECTION I.—1. When, and under what circumstances, did the Saxons first settle in Britain?

2. How, and at what time, were the Saxon and Norman lines united on the Throne of England, and with what results?

3. Show, as far as you can, traces of the Anglo-Saxon character in the habits and manners of the English; in their dress, houses, and literature.

SECTION II.—1. State what you have read of the early inhabitants of Wales.

2. Give a short account of the conquest of Wales by Edward I. Mention dates.

3. In what respect has the physical character of Wales influenced the history and social position of its inhabitants? Illustrate your answer with respect both to North and South Wales.

SECTION III.—1. Had the House of York or that of Lancaster the better claim to the Throne? Give reasons.

2. Mention some peculiar instances of cruelty in the Wars of the Roses.

3. What effect on the nation at large did the civil wars of the 15th century produce? Give a few instances.

SECTION IV.—1. Write a short account of the reign of James I.

2. Mention some of the chief events during the course of the Long Parliament.

3. Show, as far as you can, the different circumstances of the people and their rulers under the Tudor and Stuart Sovereigns.

SECTION V.—1. Give some account of Philip of Macedon.

2. Write what you know of the early history of Egypt.

3. Show, from general History, that the progress of power has been from the East to the West.

GEOGRAPHY AND POPULAR ASTRONOMY.

SECTION I.—Draw an outline map of one of the following countries:—

1. England.
2. Asia Minor, illustrative of the journeys of St. Paul.
3. British India, showing its chief provinces and cities.

SECTION II.—1. What counties border on Staffordshire; and what are separated from one another by the Thames?

2. What counties are separated by the Frith of Forth.

3. What other countries lie between the same parallels of latitude as Great Britain? In what respects do their climates differ from ours, and why?

SECTION III.—1. Name the principal countries of the Torrid Zone.

2. Name the chief West India Islands, the Ionian Islands, and the principal groups of Islands in the Pacific.

3. What are the provinces of Austria, and what are their chief cities? By what different races of men are they inhabited?

SECTION IV.—1. What chief articles of commerce come to us from between the Equator and the latitude of the Straits of Gibraltar, what from thence to the latitude of London, and what from north of that latitude?

2. What influence has the elevation of a country above the sea level, on its climate and productions? Give examples of this.

3. Why does more rain fall on the West than on the East coast of England? Name some rainless and some riverless districts of the world. There is a remarkably fertile country where it rarely or never rains; name that country and account for its fertility.

Section V.—1. Describe some of the most prevalent currents of the air and the ocean.

2. Account for the formation of dew and for its deposition in different quantities on different substances. Why does ice form itself on the surface and not at the bottom of the sea?

3. The Ferroe islands, St. Petersburgh, and Takoutsk in Siberia, have nearly equal latitudes; the mean winter temperature of the first is 38°, that of the second 16°, and that of the third 38°; account for this difference.

Section VI.—1. Show that the earth cannot be an infinitely extended surface. Give one reason only.

2. Why do the northern stars appear to descend as we travel southward? Why do they appear to descend exactly as many degrees as we change our latitude?

3. Why are some eclipses of the sun partial and some annular? Why are not the same eclipses visible in all parts of the world? Why do they not return every month? How often do similar eclipses return, and why?

ANSWERS TO THE MATHEMATICAL QUESTIONS.

Ques. 96.—*Proposed by J. H.*

Find the weight of a circular silver shield 1 foot 10 inches in diameter and ·075 of an inch thick, the specific gravity of silver being 10474 Find also its value at 6*s*. 9*d*. per ounce Troy.

Answered by Mr. Sothern, Mr. Davison, Mr. Reed, and A. M.

$$\text{Weight of the shield} = \left(\frac{22}{12}\right)^2 \times {\cdot}7854 \times \frac{{\cdot}075}{12} \times 10474,$$

$$= 172{\cdot}82 \text{ oz. avoid.},$$

$$= \frac{172{\cdot}82 \times 175}{192} \text{ oz. troy.},$$

$$\therefore \text{Value of the shield} = \frac{172{\cdot}82 \times 175}{192} \times {\cdot}3375l.,$$

$$= 53l.\ 3s.\ 3d.$$

Ques. 97.—*Proposed by Mr. Whitham, Battersea.*

Given the two adjacent sides of a parallelogram and the included angle, to find an expression for the tangent of the angle of intersection of diagonals.

Answered by Mr. Righton, Mr. Morris, and Mr. Rutter.

Let the diagonals of the parallelogram A B C D, intersect in the point O. From D let fall D E perpendicular to the diagonal A C. Put $a =$ A D, $b =$ D C, $\beta = \angle$ A D C, and $\theta = \angle$ A O D; then we have

$$a^2 - b^2 = 2\,\text{A C} \times \text{E O},$$

$$\therefore \text{E O} = \frac{a^2 - b^2}{2\,\text{A C}};$$

now from the two independent expressions for the area of the parallelogram, we have

$$\mathrm{A\,C} \times \mathrm{D\,E} = a\,b \sin \beta,$$

$$\therefore\ \mathrm{D\,E} = \frac{a\,b \sin \beta}{\mathrm{A\,C}};$$

hence we have by division

$$\tan \theta = \frac{\mathrm{D\,E}}{\mathrm{E\,O}} = \frac{2\,a\,b \sin \beta}{a^2 - b^2},$$

which is the expression required.

Ques. 98.—*Proposed by Tom Tomkins.*

A body of w lb. acquired a velocity of v feet per second in descending an inclined plane, whose coefficient of friction is f, and perpendicular height h feet; required the inclination of the plane.

Answered by the Proposer.

Let β = the inclination of the plane to the horizon. Perpendicular pressure on the plane $= w \cos \beta$,

$$\therefore\ \text{Friction on the plane} = f\,w \cos \beta,$$

$$\therefore\ \text{Work due to friction} = f\,w \cos \beta \times \text{length plane},$$

$$= f\,w \cos \beta \times \frac{h}{\sin \beta},$$

$$= f\,w\,h \cot \beta.$$

$$\text{Work due to gravity} = w\,h.$$

Work accumulated in the body $= w\,h - f\,w\,h \cot \beta$; but the accumulated work is also expressed by

$$\frac{w\,v^2}{2\,g}.$$

$$\therefore\ w\,h - f\,w\,h \cot \beta = \frac{w\,v^2}{2\,g},$$

$$\therefore\ \cot \beta = \frac{1}{f}\left\{1 - \frac{v^2}{2\,g\,h}\right\}.$$

It will be observed, that the angle of inclination, in this problem, is not supposed to be very small.

LIST OF MATHEMATICAL ANSWERS.

W. Davison, Sunderland, ans. 96, 97; A. M. Gillingham, ans. 96, 97; T. Sothern, Burtonwood, ans. 96, 97; E. Rutter, Sunderland, ans. 96, 97; G. Morris, Gosport, ans. 96, 97; W. Righton, ans. 96, 97, 98; J. Bolton, O. Malton, ans. 96, 97; Sam. Dyer, Wanstead, ans. 97; G. Barnacle, Empingham, ans. 96, 97; J. Royds, Hollingworth Free School, 97; W. H. Yoel, ans. 96, 97; W. Righton, jun. ans. 96; J. Herbert, Woolton, ans. 96, 97, 98; J. Salter, Durham, ans. 96, 97, 98; F. R. Crampton, ans. 96, 97, 98; Sam. Dyer, ans. 98,

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NEW QUESTIONS,

To be answered in our Number for July, 1851.

Ques. 99.—*Proposed by J. H.*

A spherical balloon, 30 feet in diameter, constructed of silk weighing

2 ounces 9 drams per square yard, is filled with hydrogen gas, the specific gravity of which is to that of atmospheric air as ·069 to 1, a cubic foot of atmospheric air weighing 1¼ ounce: what weight will just balance the balloon to prevent it from rising in the atmosphere?

QUES. 100.—*Proposed by Mr. E. Whittle.*

The expense of paving a court-yard with Dutch clinkers, at 5*s*. per hundred, was 40*l.*; required the dimensions of the court-yard, allowing 144 clinkers to a square yard, and that length of the court-yard exceeds its breadth by 15 feet.

QUES. 101.—*Proposed by Nemo.*

Given the base (b) of an isosceles triangle, to find its perpendicular height, when the area of the inscribed circle has a given ratio (p) to the area of the whole triangle.

STATE OF PRIMARY INSTRUCTION IN THE DEPARTMENT OF TARN DURING THE SCHOOL YEAR 1849-50.

(*Continued from p.* 147.)

Children attending the Schools.—Out of 1000 inhabitants, 68 children, on an average, attend the primary schools. In 1839, there were only 55 out of 1000: the progress, then, is real. We are, however, below the average which, for the whole of France, is about 92 in 1000: while some of the departments, such as that of Doubs, count 176 pupils out of every 1000 inhabitants. The number of children between 6 and 14 years of age, who do not actually attend the primary schools, may be reckoned at 20,000. Many of these have already left school, carrying with them notions the most imperfect, which they will very soon completely forget. The great majority are condemned to absolute ignorance.

School Houses.—The law of 28th June, 1833, compels communes to provide suitable buildings which shall serve both as school-rooms for the children, and dwelling-houses for the masters. The law of 15th March, 1850, has preserved this obligation. Communes are also advised to become the owners of school-houses; and in 1848 they possessed 86 school-houses, while at the present day they have, 99. About 15 new school-houses may be reckoned which shall be completed during the next year. Everywhere, in the course of my inspection, I have ascertained that *the places rented by the communes to serve as schools and teachers' residences are unhealthy, badly ventilated, insufficiently lighted, inconvenient, and inadequate; whilst some are in a completely dilapidated condition.*

Purchase of Books for the Poor.—Rural schools are entirely without good books. Poverty prevents many parents from purchasing such books as are necessary for their children, or it makes them select, not those which the teacher indicates to them, but those which itinerant booksellers sell them at a very small cost. Serious inconveniences result from this state of things. I believe that it is necessary to provide in the *budget* a grant of 500 francs for the purchase of books for poor scholars.

Assistance to Old and Infirm Teachers.—The aged instructors have spent their strength in the career of primary instruction—an office, up to the present time, so badly remunerated. They are now worn out, and will suffer all the horrors of poverty, unless the department render them assistance. I solicit for them an allowance of 500 francs. This sum will annually diminish, and, finally, will disappear from the departmental budget; since the new law in reference to education assures to instructors a retiring pension in proportion to the duration of their services.

Infant Schools.—The department contains 9 infant schools for boys and girls, containing a total of 1001 children. There are 2 schools more than there were in 1848 : the increase in the number of children amounts to 270. All these schools, with the exception of two, are defective. There is neither a proper locality, nor sufficient apparatus, nor even an intelligent direction, These establishments require a complete reform.

Normal School.—One of the most important duties entrusted to me is, undoubtedly, the inspection of the Normal School. This duty is rendered exceedingly easy on account of the excellent condition of this establishment, which continues to deserve the praises which have been bestowed on it by the general council of the department, the academic authorities, and the general Inspectors of the University.

The satisfactory results which it is permitted me to state are owing to the unbounded devotion and the untiring zeal of the director of the school: to the strict discipline which he maintains with vigour—to his constant presence at all the exercises of the house—to the religious punctuality which is everywhere manifest, and which is the best precept on order and regularity which it is possible to give to our future instructors.

The Normal School has rendered immense service to the country: it has given us our best instructors; it has raised, to a considerable extent, the level of popular instruction; thanks to it, above all, should M. Charles Dupin trace out again the intellectual map of France, we shall behold the *black spot* * disappear by which the illustrious statistician had stigmatized the department of Tarn.

Since 1833, the Normal School has produced 174 instructors : of these 120 are communal teachers, and 9 are about to become so; 1 is assistant master in the Normal School; 3 are private instructors; 27 have left the profession; 14 have died in the exercise of their duties; total 174 who have obtained their *brevet* † on leaving the school. Of this number, only 10 have been *breveted* to the superior degree; this is a small number when we consider that the course of instruction in the Normal School comprehends all that is contained in the programme for the superior *brevet.*

The teachers who have come from the Normal School are infinitely superior to their colleagues. They are superior by their capacity—by the condition of their schools—by their faithful observance of rules—and, almost always, by their zeal, and by their conduct towards the local authorities and the heads of families. In the course of my inspections, I have been constantly struck with the marked difference which exists between the teachers who have been educated at a Normal School and those who have not been in any special way prepared for the duties of instruction. People partake of my convictions, in this respect; and Normal students are always chosen, n preference to other candidates, by local committees and municipal councils.

Since the establishment of the Normal School, only 2 of the teachers educated within its walls have been dismissed,—one for immorality, the other for habitual negligence in the performance of his duties. If, on the other hand, the honorary list of rewards granted by the Minister of Public Instruction to the Teachers of Tarn be consulted, we shall find that from 1842 to the year 1848, the pupils of the Normal School have obtained 1 silver medal, 8 bronze medals, and 19 honourable records.

Normal School for Females.—The opinion which I have formerly expressed of the importance which I attach to the good education of girls, will, I trust, be sufficient to make you appreciate the strong desire which I have for the continuance of exhibitions for female candidates. The Normal School is in excellent condition, and the results obtained are satisfactory. At the last examination, out of 13 who presented themselves, 3 were *breveted* with the numbers 2, 4, and 6.

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* See maps on this plan in the Minutes of the Committee of Council on Education for 1849-50, vol. ii.

† This corresponds to our Government Certificates.

Such is a faithful and impartial account of the state of primary instruction in the department of Tarn. I have endeavoured to give, by figures obtained from authentic sources, the results due to the law of 28th June, 1833, and at the same time, to establish the starting-point of the law of 15th March, 1850; so that it may be easy, at a later period, to estimate the benefits which the department may have derived from it.

A. DOMERGUE, *Inspector*.

TRAINING SCHOOL FOR REGIMENTAL SCHOOLMASTERS, ROYAL MILITARY ASYLUM, CHELSEA.

As many persons desirous of becoming Teachers are unaware of the existence of a School for the training of Schoolmasters for the Army, the following, we understand, are the conditions under which students are admitted into the Normal School, and the advantages which are offered them when their period of training is completed.

1. Candidates for admission must be unmarried; not under the age of 19, nor above 25; and not below 5 feet 6 inches in height.
2. They are required to pass a certain examination at the Military Asylum, in order to test their qualifications previous to admission; and to produce a certificate of character and conduct, signed either by the Clergyman of the parish in which they reside, or by the Minister of the congregation of which they are members.
3. Whilst under instruction in the Normal School—a period of about two years,—they are maintained and clothed at the public expense. When certified fit for appointment as Schoolmasters in the Army, they are required to enlist for ten years in the Infantry, and for twelve years in the Cavalry.
4. The Pay of Schoolmasters, when appointed, is 2*s.* 7*d.* a day, with clothing and quarters, and a further allowance of 6*d.* a day after such period of service as the Secretary at War may decide. They are also entitled to a portion of the fees received from soldiers for their instruction.
5. They rank next to the Sergeant-Major of the regiment to which they may be appointed.
6. They are also entitled to a Pension, under the regulations for pensioning non-commissioned officers and soldiers.

Applications for admission into this Institution should be addressed to the Secretary at War, War Office, London.

May, 1851.

To Correspondents.

NATIONAL SCHOOLMASTER will find Kitto's Cyclopædia of Biblical Literature a very useful book; the other book he inquires about we cannot recommend. His suggestion we will bear in mind.

A SUBSCRIBER.—We know of no book on Method, or the Art of Teaching, that we can recommend.

THE SCHOOLMASTER AT THE EXHIBITION.

(*Continued from page* 196).

Before passing on to the consideration of other features of our subject, we are tempted to make one more observation on excellence in taste, believing that it is important for the youthful mind to be habituated to a contemplation of the beautiful in art, and to a discrimination of what really merits the epithet. The conceptions of art should be associated with the dictates of utility or of nature. Caprice will not evolve the manifestations of beauty. There is a natural fitness in the character of effective ornament; and this natural fitness must be kept in view as a standard to which the productions of art should indicate a constant reference,—as a mirror in which imagination should always seek the reflexion of her designs. In architecture, for example, we should see no portion of an edifice out of keeping with the main design,—not a pillar or a buttress introduced merely for the addition of ornament, but in a position warranted by some apparent necessity of support. In poetry, too, and in music, we should observe how excellence has been attained and reputation won through conformity to nature. The principal personage in Addison's tragedy of Cato does no more than declaim the words of Addison; the hero in Shakespeare's tragedy of Hamlet utters the natural sentiments of the Prince of Denmark. The one dramatist puts language in the mouth of a performer, who is made artificially to describe himself; the other speaks as if he not merely sympathised, but was identical with a man who is prompted by the feelings of his heart and the circumstances of his situation. Conformity to nature has given to all our great poets their resistless power. And, in like manner, by the compositions of the great masters in musical science we are deeply interested, because they have not merely given accurate attention to technical laws, but developed relations of sound expressive of natural series of emotions, causing us to realize effects similar to those of graphic literary description or appeal.

That principle of correct taste which we are now commending is found abundantly exemplified within the Crystal Palace. The Royal Cradle with its emblems of repose, and the Kenilworth Buffet by which the aged oak is made to record scenes connected with the locality in which it grew; these, and a thousand other productions of artistic skill interest the imagination by their suggestiveness of appropriate sentiment, and by exciting the sympathy so necessary to a lively appreciation of the works of art. Examples are, however, here and there met with, in which meretricious ornament gives evidence that the artist was prompted by a fancy regardless of nature's models; and, in such cases, the want of significance or of harmony will occasion disregard or provoke disapproval. Let it be considered, moreover, that the cultivation of respect for natural propriety in the material productions of taste is closely connected with a generally useful discipline both of mind and heart; and that the disposition to appreciate true artistic beauty will be found to facilitate the cultivation of a tendency towards excellence of a nobler kind,—spiritual and moral.

But the great lesson to be learned from the Exhibition of Industry is prominently declared in its name. The Crystal Palace should be regarded as a monument designed to honour the Divine appointment of industry. We know that not even in paradise was human industry dispensed with, and that even after creative power had manifested how absolutely unnecessary was the intervention of human instrumentality to preserve or improve the stores of nature, there was, nevertheless, assigned to man the occupation of a labourer, and the continuance of beauty and utility was made dependent on his watchful and persevering care. We now, indeed, find the appointment of industry considerably altered in its conditions, Labour is now associated with some degree of painfulness, while the necessity of it is more urgent than it was originally. And were it not that our food and clothing must be provided by our toil, a vast amount of bodily exercise in which the human race are daily occupied would cease.

Labour is not delighted in or willingly endured. For a very long period in the earlier history of the world, the doom of toil was shunned by all who could get rid of it, and transferred to a class who were considered as thereby the most degraded. It was indeed the exceptional practice of some eastern nations, that children even of high birth should be taught some species of handicraft; but this was a prudential custom, intended to provide that, in case of inherited riches taking to themselves wings and fleeing away, there might remain an inalienable source from which a livelihood could be procured. Generally, a large portion of our world's history exhibits mankind disdaining labour, and endeavouring to escape from it. And though we are addressed by ordinations of our Creator, imposing on us the duty of working for our support; though, likewise, it has been everywhere abundantly proved that industry is a means of great moral benefit; the disposition to indolence is still extensively prevalent, and in many instances unconquerable even by the severest evidences of its importance or necessity. But what a powerful enforcement does the Palace of Industry contribute to those lessons of industry which the schoolmaster should specially endeavour to inculcate. From the east and from the west, from the north and from the south, have the nations of the earth sent forth testimony of their desires and their efforts to procure honour for the various branches of mechanical skill and mercantile traffic; and a temple has been erected to enshrine the offerings of industrial enterprise, —a temple whose walls and roof are everywhere permeated by the light of Heaven, as if the universal Sun should have special dignity in presiding over the collected contributions of all climates and nations. Honour to industry, then, is the import of the Palace of Industry; an enthronement is here made of that which was once deemed indicative of social meanness; the source of true temporal greatness being proclaimed and exalted in the sight of all men, and a noble and persuasive encouragement given to the appreciation and maintenance and improvement of industrious habits. Let it not be said that the main tendency of the whole is mammonizing. It may be looked at with the regards of a worldling, for like all good things it admits of the perversion of abuse; but it is calculated to promote a reverential remembrance of the Divine institution of labour, and to impress on our minds a recognition of the fact that the institution is for human benefit, moral as well as physical. When the decree went forth "In the sweat of thy face thou shalt eat bread," it was not so much a decree *against* man, as *for his defence* against the moral evil of which idleness is the prolific parent. Labour is a preventive and remedial severity, denying opportunity of much sinful indulgence, and disciplining the heart in the practice of contentment. And then the leisure afforded by its stated intermissions brings agreeable repose, while the leisure engrossed by habitual idleness produces nothing but discomfort. Labour continually qualifies us for the experience of pleasure. Sloth continually incapacitates us for enjoyment.

The worth of the materials fashioned by the hand of industry, and presented to our view in the Crystal Palace, is a consideration in some respects separable from that of industry itself; but it is important also. The man who for the dexterity which he had acquired in a childish performance was rewarded with a bushel of peas, was appropriately censured for an expenditure of industry on what was neither elegant nor useful. Much more should we condemn those whose skill and energy are given to the promotion of injurious or dishonourable purposes. So that, we say the consideration of the materials and products of industry, as well as industry itself, is important. And the infinite diversity of useful and proper channels in which industry may operate is a thought powerfully stimulated by a survey of the contents of the Crystal Palace. There we see what the ingenuity of man can do with the rock and with the forest, with the deep treasures of the earth, and with the heaving waters of the broad sea. There we see the means whereby he vindicates dominion over the inferior living tribes, the artifices of his preeminent faculty of reason, by which he overpowers the strongest, and outruns the swiftest, and derives advantage from the feeblest. There we see the issues at which gradual improvement has arrived in the accommodations of dress and dwelling, of sustenance and enjoyment. The Exhibition makes us listen to a thousand voices,—from the dark recesses of the ocean and of the mine, from the arid tracts of the desert and the cloud-capt summits of the mountains,—proclaiming that man has been there in the exercise of industry, and has found rich rewards of his inquiries and experiments. Nature herself is a contributor to this temple, and man is her delighted messenger. She has allowed him her fires and her vapours for the manufacture of his machines and for the transport of his commodities; and taking upon herself more and more of the toil of production, she has thereby multiplied and facilitated and improved the production.

Thus by little and little does the Creator reveal to us the wonderful uses and applications of the world's contents. Have our efforts to serve Him, for whose glory all things were created, been in any reasonable proportion to the benefits he has conferred upon us? As His goodness abounds towards us, does the honour we render to Him abound also? Shall the Palace of Industry be an accumulation of gifts destined to indicate but a small portion of the measure of earth's ingratitude to heaven? Let it be far otherwise. Let us use this world as not abusing it. Let us not only receive thankfully God's temporal gifts, and cultivate industriously the resources of earthly improvement He has placed at our disposal, but let us gratefully appreciate His spiritual blessings, and apply our hearts above all things to the pursuits of that heavenly wisdom, whose chief results are reserved for the adorning of a more glorious than earthly temple, in which they who have been fellow-workers with God shall everlastingly enjoy the rewards of righteousness.

(*To be continued.*)

ON LATIN ETYMOLOGY.

No. XI.

When a simple verb, as often happens, disappears from a language, and its office is performed by some secondary verb deduced from it, lexicographers in their ignorance of the previous existence of such simple verb, or else in their fear to allude to it, are apt to treat other derivatives from the simple word as descended from the secondary word which has supplanted it. One such false step usually leads to others, and accordingly to patch up an unfounded theory, violence is done to the laws of derivation. Thus it is a common practice to say that *potus* is the participle of *potare*. Zumpt, for example, even in the last edition of his Grammar, as translated by Dr. Schmidt, with his latest corrections and additions, tells us (p. 150) that " the supine of *poto* usually instead of *potatum* is *potum*, whence *potus* . . . having been drunk and having drunk." Lünemann, improving upon this, commences his article on the verb *poto* thus:—" Poto, potavi, potatum und *contr.* potum, are." The fact of his considering *potum* as contracted from *potatum* is the more extraordinary as he immediately gives us the parenthesis: (von *πόω*, *i.e.* *πίνω*). Thus he admits the existence of a primitive verb *πο-* 'drink;' and yet not merely does he deal with *potum* as a contraction from *potatum*, but under the heads *potilis*, *potio*, *potor*, *potus -ūs*, he regularly refers to *poto* as the parent. His consistency in error fails him however under *poculum*, which he rightly deduces from a root *πο-ω*. We fully admit that *πο-ω* is a verb for which there is no authority in the existing Greek authors, but when we find *εποθην* for an aorist and *πεπωκα* for a perfect, we unhesitatingly affirm that *πο-* or *po-* may be assumed as the basis whence come in Greek *πο-τηρ*, *πο-της*, *πο-σις*, and in Latin the words *po-ta-re*, *po-culum*, *po-tilis*, *po-tio*, *po-tor*, *po-tus -a -um*, and *po-tus -ūs*; the more so as we are already familiar with these suffixes, as in the words *agita-re*, *veh-i-culum*, *fer-culum*, *fer-tilis*, *sec-tilis*, *ac-tio*, *vec-tio*, *sec-tio*, *ac-tor*, *vec-tor*, *sec-tor*, &c.

A similar error occurs in the mode of treating *censum* and *census*. Thus we find in the same work of Zumpt's (p. 153): " Censeo, censui, censum, (participle also censitus)." Now the noun *census*, acc. *censum*, ought to be referred to an obsolete stem *cen-*, which is also the parent of the derivatives *cen-sio*, *cen-sor*, *cen-sura*, *cen-trum* much as *ara-* and *pig-* (*ping-*) are of the words *ara-tio*, *ara-tor* and *pic-tor*, *pic-tura*, *ara-trum*. One of the many advantages of starting from the simple element, is that we are thus led, or rather all but compelled, to include in our view words, which by their formation claim kindred, although the meaning at first seems repugnant to such claim. Thus, *centrum*, 'a centre,' seems in sense to have no connection with the words to which, by virtue of its shape alone, we have been led to append it. Lünemann seems to have had no systematic principles of etymology. Hence, under the heads of *censio*, *censor*, *censura*, *census*, he refers us to *censeo*, but when he comes to *centrum*, he tell us in the parenthesis usually assigned to etymology, that the word is Greek, and identical with κέντρον. For this appeal to another language there was no occasion. The word *centrum* is as genuine a native of the Roman soil as κέντρον of Greek. The notion expressed by the root *cen-* of the Latin language, was, no doubt, 'to prick.' This of course is well-suited to the meaning of the noun *centrum*; and when we consider that one of the most ordinary modes of counting among ourselves is by pricking some such material as paper, we see at once how derivations from the root *cen-* might well be employed to denote the office and duties of a censor or enumerator. We the less hesitate about this as we know that the Romans actually employed the process of puncturing wax or some other material in matters of enumeration. Thus, at the elections, the votes were marked by a puncture of some kind, so that *punctum* became synonymous with a vote, and is so used both by Cicero and Horace. Thus we deem it safe to claim for the Latin language a root *cen-* 'to prick,' which is akin to the Greek κεντε-ω, &c. But in the Greek dictionaries also a similar course of error has prevailed. Thus we find the Homeric κεν-σαι called an aorist of κεντε-ω, or else κεντ-ω. Here too we contend for the simpler form κεν-, whence we would adduce not merely this aorist κεν-σαι but also κεν-τρον, κεν-τωρ, as well as κεσ-τρον, κεσ-τρα, and the adj. κεσ-τος 'acu pictus.' The interchange of a ν and ς at the end of Greek roots, is all but co-extensive with the number of such roots. Thus σβεν-νυμι Ϝεν-νυμι, φαινω, (φαν-) have beside them α-σβεσ-τος, ε-σβεσ-θην, Ϝεσ-θης, ημφιεσμαι, φάσ-μα.

While dwelling upon the root *cen-* as existing in the Latin language, the thought comes across us that the French verbs *conter* "to tell a story, narrate," and *compter*, whence our own *count*, are themselves both to be deduced from the same source. As regards meaning, we should be disposed to consider the idea of counting as entitled to precedence over that of narrating; and the passage from the one notion to the other is familiar to the English scholar in the thoroughly parallel case of *tell* and *tale*, two words which, in their primitive sense, express merely enumeration. Thus the shepherd who tells his tale under the hawthorn in the dale is merely counting his sheep. The question of form is in part easily disposed of, the Latin verb *temptare* (for so it turns out all the best MSS. of all the best authors spell the word) is a modification of *ten-ta-re*, and so it is but a frequentative of the root *ten*, "strain," more familiar to us in the lengthened forms *tene-o*, "I grasp," and *tend-o*, "I stretch." Now a frequentative is well suited to the idea of counting, which is essentially a matter of repetition, and a change from *cen-ta-re*[*] to *con-ta-re* is one which it is not necessary to dwell upon at any length. Plautus says *votare*, where most authors prefer *vetare*. Again, in one of our recent papers, we traced *mora* "delay," through a form *mona* (= *μον-η*) to a base *men-* (= *μεν* of *μιμνω i.e. μι-μεν-ω*). We would add to this that in English also we write almost indifferently, *accountant* and *accomptant*. The usual course, we believe, is to deduce *compter* from *computa-re*, but we think the *u* would in that case have been retained, as in *reputer*, &c.

Still to adhere to roots ending in *n*, we will take the verb *senti-o*. Now Zumpt, in p. 180, has the line, "*Sentio*, *sensi*, *sensum*, *sentire*, feel, think." Here we have a third instance of the evil we complain of. *Sensi* and *sensum* might well attach themselves to a root *sen-*, whereas from *sentio* should have proceeded *sentivi* and *sentitum*. From the same primitive root *sen-* come with all regularity the adverb *sen-sim* the frequentative *ad-sen-ta-ri*, and the substantive *sen-ti-s* "a thorn." In the German language we have the primitive word still existing in *sinn*, "feeling, sense." The word *sentis*, which occurs it is true only in the sense of "a thorn," probably at first meant "feeling," and then the formation of the secondary verb is explained, as it will agree with the familiar cases of *leni-re*, *molli-re*, *fini-re*, *tussi-re*, *vesti-re*, *parti-ri*, *sorti-ri*, *denti-re*, *arti-re*, from the several nouns *leni-s*, *molli-s*, *fini-s*, *tussi-s*, *vesti-s*, *parti-s* (old form of *pars*, whence ac. *partim*), *sorti-s* (old form of *sors*), *denti-s* (old form of *dens*), *arti-s* (old form of *ars*). Nay, we also claim *cense-re* as virtually of similar formation. The participle *censītus* and substantive *censītor* evidently imply a verb *censi-*. It is much in the same way that we find the presents *eo queo*, and *nequeo* in connection with other forms that belong pretty decisively to the fourth conjugation. So the Greeks got into the habit of using πολε-ως where analogy from πολι-ς would have required πολι-ος. Now *cen-si-* is precisely the form that would arise in the attempt to create a substantive by the addition of the suffix *ti-* to a base *cen-*.

The advantage of fixing the eye on the essential part of a word is nowhere more marked than in considering the family of words of which *men-* is the founder. From this come *men-tion-*, *men-ti-* (nom. *menti-s*, afterwards *mens*), *menti-ri*, the perf. *me-min-i*, the compounds *com-min-isc-i*, *re-min-isc-i*, *com-men-to-*, *com-men-ta-ri*, &c., and by a slight change *mem-or* (for *men-or*). Now Lünemann under *comminiscor* is perfectly silent as to etymology, as though the word were an original root. Equally silent is he under *mentior*. But with the word *memini* he gives us the following extraordinary information:—("Perfect of the obsolete verb *memino*, Greek *μέμνω*, *μνάω*, I figure to my mind, *i.e.* place before me: hence in the *perf.*, &c.")[†] Again under *mentio*, he refers us to *memini* as a parent, while *mens* is said to be of Greek origin, and an equivalent for *μένος*.[‡] The gender alone should have prevented such an assertion, even if the author forgot that in *mens*, *mentis*, the *t* is a letter not to be neglected. Had μενος been precisely represented in the Latin language, it would have been by a neuter noun *menus*, *meneris*, just as γενος is by *genus*, *generis*. Besides this the noun *gens* is by Lünemann* himself correctly deduced from *gen-* of *gigno* (=*gi-gen-o*). An early sense of the obsolete verb *men-* was probably "to mind," *i.e.* "carefully notice." Those who complain of bad memories will be generally found to have failed in the first requisite, *i.e.* giving their mind to the object they would wish to recollect. On the other hand, *memini*, "I have minded," "I did notice," is well adapted to denote "I recollect." But how could Lünemann fail to perceive that *memini* owes its first syllable like μεμνημάι solely to the ordinary principle of a reduplication in the perfect; and how could he imagine such a syllable as με to be admissible in the imperfect tenses, when the veriest beginner in Greek is aware that reduplication never enters the imperfect tenses except with the vowel ι as in μιμνω, γιγνομαι, ἱστημι, τιθημι, πιμπλημι, πιπτω, &c.? The very sight of such impossible verbs as *memino* and μεμνω is offensive to the eye of a philologer. If our view about the origin of *mentiri* be correct, of course its first signification must have been "to invent" like *comminisci*; and vices are often denoted by a euphemism. The greater part, if not all that has been just said, has been anticipated by others. Indeed the substance is admitted by Lünemann himself under the head, "Reminiscor, i (re and *meniscor or miniscor, from the old *verbum* meno memini mentum, whence the still existing words mens, mentio, &c. are derived)"—a passage which is sadly at variance with the etymological remarks given under the other derivatives of the stem *men-*.

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[*] A verb κεντα-ω appears to have existed in Greek. See *Stephens' Thesaurus*, by Valpy.

[†] In the original: Mĕmĭni, isse (*Perf.* vom veralteten *Verbum* memino, griechisch *μέμνω*, *μνάω*, ich vergegenwärtige meiner Seele, *i. e.* stelle mir vor: daher im *Perf.*), &c.

[‡] Oddly enough, as if to discredit this doctrine, Messrs. Liddell and Scott give, as the first meaning of *μενος*, "force, strength of body." Only under their second

In the case of the base *gen-*, it is wholly unnecessary for lexicographers to appeal to the Greek language. This root is as thoroughly Latin as it is Greek; and it seems the more ludicrous to find Lünemann commencing the article *gens* with the parenthesis: (von γένω oder γίγνω), when the very article which precedes this in his own lexicon tells us that *gen-o* was actually used by three Latin writers. It will be difficult to find equal authority for the Greek γένω. But again he is inconsistent with himself. Under *genitabilis*, *genitalis*, *genitivus*, *genitor*, *genitura*, *genius*, he is not afraid to refer to this obsolete verb *gen-o* as the parent; yet again under *genus* he flies to the Greek for aid. Of course we do not deny that the Greek γενος and the Latin *genus* are equivalents, but this admission must not be construed into the supposition that the Romans imported their word *genus* from Greece.

There are some derivations from this root *gen-*, which have been too frequently cast upon the wide world as orphans; *viz.* *gemma*, *germen*, and *germanus*. The first of these is without etymological remark in

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main division does the idea of "mind" make its appearance. In this however, we cannot but think they are wrong. And indeed, though μενος is marked in their lexicon in capitals, so as in a manner to imply that it is a primitive, yet they end with telling us that it is akin to the Latin *mens*, our *mind*.

* On turning to Mr. Riddle's Dictionary we find the old error re-appearing. For once he leaves his guide, Lünemann, and gives us, "Gens, tis, f. (contracted from genus)."

Lünemann, and he commits what appears to us a grave error in giving to the notion of "a jewel" precedence over the other notion of a "bud." The word, as signifying a bud or germ, may well be expressed by a derivative from *gen-* "produce or cause to grow," such as *gen-ima* or *gen-ma;* and such a word would by the usual law of assimilation soon pass into *gemma,* much as the Latin *anima* has become in French *âme*. *Germen* also is a form not unlikely to flow by a slight letterchange, already mentioned in this paper, from *gen-i-men;* and from *germen* would be formed an adjective *germin-anus,* which containing two consecutive syllables of a nasal sound, *in* and *an,* would naturally be compressed into *germanus.* Of such a formation we have an all but parallel in *hūmanus** for *hŏmĭn-anus,* from *hŏmŏn-* (n. *homo*). The meaning suits well, for *fratres germani* will now signify "brothers of the same stock or family," in opposition to *fratres patrueles,* or *fratres* through a paternal uncle, which we express by first cousins. Lünemann is again silent on the origin of *germanus;* but under *germen* we find the remark that the word is deduced from *gero,* which he tells us originally signified "produce" (*zeugen*). This strange translation of *gero* is repeated under the article *gero,* with the additional information that this verb is "from *γέω i.e. γείνω,* with an inserted *r*." Now we are satisfied with the old doctrine that *gero* has for its meaning "to carry" with the notion commonly superadded that the carrying is not of a momentary, but rather an habitual, or at least continued character; in other words we believe it to correspond in sense (and indeed also in form) to our English verb *wear*. Such a passage as *terra gerit herbas* from Tibullus will not lead us away from our preconceived opinion, because the words readily admit the translation, "the earth wears or is clothed with plants." Virgil, for instance, has the phrases *terra se gramine vestit,* and *olea vestire Taburnum.* But independently of our objection to the translation which Lünemann assigns as the primitive sense of *gero,* and independently of our hesitation about his Greek verb *γέω,* we must protest against his doctrine of the *r* being an inserted letter (mit eingeschaltetem r). We admit that there are valid cases of inserted letters, for example that a *p* will insert itself after an *m,* if a *t* or *s* follow, as in *temptare, contemptus, sumpsit, hiemps* (so MSS.), *Thompson.* We admit also the insertion in a similar manner of a *b* after an *m,* if an *r* or *l* follow, as in *μεσημβρια* for *μεσημερια,* in the French *nombre* for *numero-*, *combler* from *cumulare,* the Spanish *nombre, lumbre* from *nomine, lumine,* and English *ramble* from *roam;* we also admit that a *d* will insert itself after an *n,* if an *r* follow as *ανδρος* for *ανερος,* and the French *viendrai, vendre-di* for *venir-ai* and *veneris-dies,* and the Scotch name *Hendricks.* But in all these cases the insertion arises from a natural affinity of the labial letters *p* and *b* with an *m,* and of the dental *d* with an *n.* There is no such excuse for the alleged interpolation of a foreign *r* in *gero.*

CLAUDIUS.

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* Thus the difference in quantity between *hūmanus* and *hŏmo* is explained.

ON CORPORAL PUNISHMENT.

No. I.

We have not hitherto wearied our readers with the dissertations on this question. We would now speak upon it very temperately, and as little as possible in a way to excite discussion. There is one form of answer, however, which we should gladly receive, viz.: a citation of the opinions of practical men, whose names carry some weight with them, and who have had experience in *the education of numbers.* It is desirable for those engaged in school instruction to know what are, and what are not, justifiable resources of discipline. It is a question which is sure to propose itself to every master who is unrestricted and free to choose his own plan of coercion: it is one, therefore, which should not be evaded in a journal professedly devoted to educational purposes.

The movement against corporal punishment on the part of the public, (for schoolmasters themselves have had, we suspect, a comparatively small share in it,) has been by no means a temperate one; indeed, the fire of some of the disputants has been one of the best proofs of their own assertion, that " besides other objections, there are many men who are not fit to be trusted with the power of corporal chastisement."

There has been a great deal more feeling and will, than reasoning or discussion upon the matter. Such sentences as these have been quite common in the mouths of parents—" No schoolmaster shall beat a child of mine." " Let him teach them well or ill, I am determined at least that he shall not strike them." A schoolmaster of our acquaintance, to whose establishment a father had brought *three sons,* was asked as a preliminary, whether he ever used the rod or cane: he replied, " Yes." " Well, sir," was the reply, " then I cannot entrust them to you, sir; *should even a father strike a son, I consider the son would be perfectly justified in striking his father.*" This is an extravagant case, but we can vouch for its truth. We ourselves were told by a parent, that if a master dared to strike one of his sons, his next step would be, himself to go and horsewhip the schoolmaster. The famous John Erigena, one of

" Those who first broke the universal gloom,
Sons of the morning,"

was, we are told, murdered by his school-boys. In the present day, it appears that parents might perhaps be found who would save their children this trouble. We allege such cases as at least a proof of the violence and wilfulness which have thrown their weight into the scale that perhaps now preponderates.

Arnold viewed the prevalent aversion to corporal chastisement as a very inauspicious phase of popular feeling. " In answer," says his biographer, " to an argument used in a liberal journal, that corporal punishment was even for moral offences, and for boys of young age, degrading," he replied with characteristic emphasis—

> " I know well of what feeling this is the expression; it originates in that proud notion of personal independence which is neither reasonable nor

Christian, but essentially barbarian. It visited Europe with all the curses of the age of chivalry, and is now threatening us with those of Jacobinism. At an age when it is almost impossible to find a true manly sense of the degradation of guilt, or faults, where is the wisdom of encouraging a fantastic sense of the degradation of personal correction."—*Arnold's Life and Correspondence*, Vol. I. p. 115.

It is evident that, in this opinion at least, Arnold did not sympathize with the political party which claimed him.

But we must not mislead our readers into supposing that this aversion to the rod, though so prevalent in the present day, is peculiar to it: we shall hereafter take occasion to show that, on this subject, there has always been much variance both of practice and opinion. Plato,[*] whose circumstances were to be sure widely different from those of a modern schoolmaster, was an advocate of the milder system, at least, in the disciplining of the intellectuals. The Roman schoolmasters, who appear to have been more systematic trainers of youth, with specified subjects of instruction, and who had to deal, not, like the Greek philosophers, with choice, inquiring disciples; but, like ourselves, with a herd of boys, good, bad, and indifferent, appear to have been unable to follow the advice of Plato, if we are to take the testimony of Horace,[†] or that more terrible description of Ausonius.[‡]

St. Augustin was brought up on the soothing system; whilst the illustrious Alcuin[§] thanks the fathers of York Minster, to use his own words, for "bringing me to the perfect age of manhood by the discipline of paternal castigation." Erasmus, who we know had no taste for martyrdom of any kind, and who probably had not been subjected to like severity, stood pitying the scholars who were suffering the flagellations of Lilly, the famous schoolmaster of St. Paul's, under the inspection of Dean Colet;[||] whilst his fellow reformer, Luther,[¶] had known what it was to be beaten by his mother till the blood came, for stealing a hazelnut, and flogged subsequently by his master for school faults fifteen times[**] a day; yet, without being led, even by this brutality, to draw any general inference against corporal punishment, or to talk maudlin in after years about an aggrieved and unappreciated childhood. Later still, we have Pope speaking of "dauntless infants," "sacred from the rod":* and Goldsmith,† of schoolmasters, who are said "never to use the rod," and who, consequently, are thought by some parents "the properest instructors for their children."

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[*] *Μὴ τοίνυν βία εἶπον ὦ ἄριστε τους παῖδας ἐν τοῖς μαθήμασι ἀλλα παίζοντας τρεφε ἵνα καὶ μᾶλλον οιος τ' ῇς καθορᾶν ἐφ ὁ ἕκασος πεφυκε* (the words are put into the mouth of Socrates).—*Plato*, *Rep.* ii.

[†] Horace refers, as it were quite casually, and with much apparent good-nature, to this characteristic of his old masters.

Non equidem insector, delendave carmina Livî
Esse reor, memini quæ *plagosum* mihi parvo
Orbilium dictare.—*Epist.* ii. i.

[‡] Tu quoque ne metuas quamvis schola verbere multo
Increpet, et truculenta senex gerat ora magister
Quod sceptrum vibrat ferulæ, quod multa supellex
Virgea, quod fallax scuticam prætexit aluta.
Ausonius, *Idyll.* iv. 14.

[§] Turner's Anglo Saxons, B. VII. vol. iii., who says of the Saxons, "That they used personal castigation in their education is frequently intimated."

[||] Erasmus de Pueris Instituendis Op. vol. i.—*Tytler's Henry VIII.*

[¶] Andin's Life of Martin Luther, as quoted by Michelet.

[**] "It is right," said Luther, relating this fact; "it is right to punish children; but at the same time we must love them."—*D'Aubigne's Reformation*, vol. i. p. 145.

This just by the way to show that the credit of dispensing with corporal chastisement does not belong to the present day either as an invention or a sentiment.

We quite agree with the advocates of more lenient methods, that the age of childhood ought not to be one of torture, slavery, and terror: we should prefer to make progress, "ferendo, potius quam feriendo." Though the great jurist Puffendorf has decided, that every schoolmaster has a right to thrash his own pupils, we should be heartily glad to see every instructor, who exceeds the proper bounds of severity, brought to a legal trial. We disapprove of all furious onslaughts upon children, and of the temper of that savage old Roman centurion, mentioned by Tacitus, who was nicknamed "cedo alteram" ("Give me another") from the rapidity with which he wore out his implements of castigation, and called for fresh ones: with a deliberate conviction, nevertheless, that, at any rate, in the junior part of a school, corporal chastisement ought not altogether to be dispensed with.

This of course is not of universal application; invalid schools at watering places—those schools for the poor, of which one of the necessary conditions is, that the children must be enticed, rather than compelled to learn, are of course exceptions: though we believe that into these latter, when they are once fairly appreciated, and firmly established, a more decided code of discipline may be admitted than they will at present bear: the main difficulty here would probably be with parents; for it is a certain fact, that, amongst the young themselves, there is rarely found an unanimous sense of disapprobation of corporal chastisement, a decided rising of the spirit against it, except where it is either immoderate, or flagrantly unjust. Burke's remarks, with respect to a nation, are perfectly applicable to an academy: when there is apparent anything like a general feeling of indignation amongst his boys, the master may be pretty sure that he is wrong, and that the spontaneous feeling is a just one.

In some cases, too, those schools might be excepted where the numbers are very small: because the master can afford more time to each pupil, and because his whole mind and will are constantly pressing upon five or six individuals, who can scarcely manage to slip from beneath his cognizance, whom he can almost watch into good conduct, and harass into industry; but to draw any inference from such a case, as to the management of a large school, is both absurd and unreasonable.

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* Not that Pope approved of such consecration; for, in the same poem, he hails the abolition of corporal punishment as ushering in the night of universal Duncery:

Proceed, great days, till *learning fly the shore,*
Till birch shall blush with noble blood no more,
Till Thames sees Eton's sons for ever play,
Till Westminster's whole year be holiday,
Till Isis' elders reel, their pupils' sport,
And Alma Mater lies dissolved in port.—*Dunciad.*

† Essay on Education.

As we proceed we shall take objections, objectors, and proposed substitutes, as they occur to us, without attempting a very formal treatise.

It has been observed, and there is some truth in it, that almost everyone fancies he can write on the subject of education. Why? Because every man can draw inferences at least from his own experience, the case of his schools and schoolfellows, perhaps of his children: because it is a subject with which common sense (for which every man gives himself credit) has largely to do: because it is one which admits endless theories, any one of which may, in this or that particular case, be successful: because, from the variety of subjects, circumstances, and dispositions, it cannot insist on the accuracy, or affect the mystery, and dignity of a science. But a schoolmaster's, a good schoolmaster's occupation is more delicate than an occupation of science; it is an occupation of tact, an occupation of temper, in which his plans are adjusted by himself more or less to his own disposition, or adjust themselves spontaneously to it. It is also so far a matter of direct professional experience, that it may fairly claim an exemption from the verdicts of that which calls itself plain common sense, and one which ought above all to be upon its guard against the individual views of clever, but not professionally experienced men (for we put aside the case of those in whom the same vanity which was mortified by the stroke of the ferule, has eclipsed all recollection of the idleness, obstinacy, or stupidity which deserved it).

Now, clever men, with their perhaps clever children, with their intellectual friends, or their one or two clever, experimental pupils, facile in disposition, and curious for knowledge, are the worst possible judges for those who have to deal on general laws, with large numbers, the majority of whom have no such facility and no such curiosity; but it is these clever men in whose works the preponderance of testimony against corporal punishment is to be found. We will adduce instances; and it is curious to notice how the observations of such men are modified according to the purpose for which, and the circumstances under which, they are writing: we do not say that they absolutely contradict themselves, this would be too much to expect; but observe the difference of tone:—

Milton, as a poet, beautifully suggests to us—

"By willing words, to conquer willing hearts,
And make persuasion do the work of fear."

But when, as a schoolmaster, writing his treatise on Education, he talks suspiciously of "mild and effectual persuasions," or "*the intimation of some fear, if need be.*" We know that Milton's was a severe temper, and Goldsmith's an amiable one, if ever there was an amiable one upon earth. Let Goldsmith, the school-usher, the experienced man, interpret this. "* *I know no passion capable of conquering a child's natural laziness but fear. Solomon has said it before me*, nor is there any more certain, though perhaps more disagreeable truth than the proverb in verse, too well known, to repeat on the present occasion."

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* Essay on Education in the "Bee."

Cowley, again, who, according to his biographer Sprat, declared that he could (qy. would) never commit to memory his grammar rules, when writing expressly on the subject of education, and probably thinking of his own school days at Westminster, advises, that, "in all their travel, boys be rather led on by familiarity, encouragement, and emulation, than driven by severity, punishment, and terror."* But when he is not speaking expressly and exclusively on education, his language runs rather differently and in a sterner strain,—

"But the true method of felicity
Is, when the worst
Of human life is placed the first;
And when *the child's correction proves to be*
The cause of perfecting the man."

In our next paper we shall give some further instances to the same effect.

APPENDIX TO REMARKS ON PERVERSION AND CORRUPTION OF WORDS.

The following observations on the usage of words occurring in political, moral, and religious discussion, may justify and explain the remarks made in our preceding papers.

> "Every century that passes over a people leaves a different mode of life, different interests, different wants, from what it found. But in this succession of different states, *language does not change so rapidly as things, and it is rare that new facts meet at any given point with new signs, which express them. The interests which have just arisen are forced to explain themselves in the idiom of those which have disappeared, and are not properly understood.* Present conditions are disguised beneath the expressions given to former conditions, and either deceive, or escape observation. *
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> At every instant we are conquered by conventional formulas, and *truth is buried beneath words.* It is not astonishing that our ideas in politics should be still imperfectly fixed, when we only find words to express them twenty centuries old. * * * * Why, then, are there so many controversies, quarrels, and social hatreds? It is because we want an exact language fit to render our particular desires in a manner which should make itself understood by all. Wishes, variously expressed, appear opposed where they best accord; the hostility of words is transferred to men."—*Augustin Thierry's Historical Essays.*

So much for the fable that diction speedily and necessarily adjusts itself to the wants and ideas of men, and that, with regard to language, whatever is, is right.

> "We have only to rescue words already existing and familiar from the false or vague meanings imposed on them by carelessness, or by the clipping and debasing usage of the market. * * * * Whether you are

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* Essay on the Advancement of Experimental Philosophy.

reflecting for yourself, or reasoning with another, *make it a rule to ask yourself the precise meaning of the word on which the point in question seems to turn,* and if it may be (that is, if by writers of authority it has been) used in several senses, then ask, which of these the word is at present intended to convey. By this means, and scarcely without it, you will at length acquire a facility in detecting the *quid pro quo.* And, believe me, in doing so you will enable yourself to disarm and expose four-fifths of the arguments of our most renowned irreligious philosophers, ancient and modern."—*Coleridge's Aids to Reflection, Prudential Aphorisms.*

J. F. B.

BIBLE LESSON.

HEADS OF THE LESSON.

1. The meanings of the principal words.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

SUBJECT.

" The righteous shall flourish like the palm tree." (Psa. xcii. 12.)

1. Righteous—flourish—like—palm-tree.

Righteous, the good; those who are holy; those who keep God's commandments.

Flourish, grow beautifully; not fade.

Like, as; in the same manner as.

Palm-tree, a tall straight tree; tree from which we get dates.

2. Here David speaks of the righteous; he says that they shall flourish or thrive like the palm-tree. If I were to say that John was like James, I should *compare* the one with the other. The Psalmist, that is the writer of the Psalms, *compares,* therefore, righteous persons to a palm-tree that flourishes in its vigour or strength, and which gives no sign or mark of decay.

To understand clearly the *likeness* or the *comparison* between them, I must tell you something about this tree.

The stem of the palm-tree is long and straight; from the ground up to its top, there is not a single branch—a distance of ninety or a hundred feet. It *tapers* or grows smaller the higher you go up. On the very top or summit of the tree are long leaves, which bend back, and form a sort of crown. This gives the tree a graceful appearance. These leaves are from ten to twelve feet in length, and are what is termed *compound,* that is, formed by numerous smaller leaves, attached* to one stem. This tree bears fruit which grows in clusters from the trunk of the tree, between the leaves. If the tree is healthy, it will produce every year from ten to fifteen of these clusters, each weighing about twenty pounds. The fruit is called *dates*; when ripe, they are sweet, wholesome, and very nourishing, and form the principal article of food to the inhabitants of Persia, Arabia, Egypt, Barbary, &c. Great quantities of the fruit are dried, and from its lightness and hardness it is of great use to persons on a journey.

But there are other parts of this tree which are useful. The *kernel,* which is hard and solid, is soaked in water, and then ground or bruised and given to camels and other cattle. It forms a most nourishing article of food. The *leaves* are employed for covering the roofs of houses, in the manufacture of baskets, mats, hats, &c. The *wood* of the *trunk* is employed in the building of houses; from the *stem* a liquor is obtained which is called palm-wine; and *cords* and *twine* are formed from the fibres of the stem of the leaves. Of so much importance is this tree to the people of Arabia, Africa, and Syria, that they regard it as a necessary* of life. This tree is always found near to water, even in the most sandy deserts. It is an evergreen, and bears fruit to a very great age. It cannot be pressed nor bent downwards, but shoots upwards towards heaven.

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* This is supposed to be explained by the teacher.

We find it frequently mentioned in Scripture.

(*a*) After the Israelites had crossed the Red Sea they encamped at Elim, where there were twelve wells and three score and ten palm trees. (Exod. xv. 27.)

(*b*) The city which Solomon built in the desert was called Tadmor, in all likelihood, from the abundance of palm-trees around it. (2 Chron. viii. 5.)

(*c*) Jericho was termed the "city of palm-trees." (Deut. xxxiv. 3.)

(*d*) Deborah, the prophetess, dwelt under the palm-tree of Deborah, and the children of Israel came up to her for judgment (Judges iv. 5.)

(*e*) The branches of this tree were carried on public occasions before kings and princes, to denote their power and authority. Hence, when our Saviour made his triumphal entrance into Jerusalem, the multitudes took branches of palm trees in their hands, and went forth to meet him. They thus acknowledged Christ to be a great and mighty King;—"Hosanna to the Son of David!" was their exclamation; "blessed is he that cometh in the name of the Lord; hosanna in the Highest." (Matt. xxi. 9.)

3. We shall now see in what respects the righteous are like palm trees.

(*a*) The righteous, or the saints of God, are here represented as trees—"trees of righteousness." (Isa. lxi. 3; Psalm i. 3).

(*b*) They shall flourish: this denotes their prosperity: or it is an emblem of the lasting happiness of the just or righteous." (Prov. xi. 28; Psa. lxxii. 7).

We see here the difference between the righteous and the wicked. The wicked (ver. 7) spring as the grass; their prosperity is not lasting; it is only for a very short time.

(*c*) The palm tree bears fruit to old age: so it is said of the righteous, that "they shall bring forth fruit in old age" (ver. 14.) The fruits of righteousness are the good works and the holy actions which spring from a gracious frame of heart. (Phil. i. 11.)

(*d*) No part of this tree is useless. So Christians are commanded always to be useful; to be of service to their fellow-creatures; to be showing forth God's glory." "Whether, therefore, ye eat or drink, or whatsoever ye do, do all to the glory of God." (1 Cor. x. 31.) "All the 'fruits' of righteousness show themselves at their proper

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* This is supposed to be explained by the teacher.

'season,' and their words, which are to their actions what the 'leaves' are to the fruit, fall not to the ground, but are profitable, as well as ornamental. Everything in them and about them serves the purpose for which it was intended; their brethren are benefited by them, and their Maker is glorified." † W. M'L.

PRACTICAL HINTS FOR THE SCHOOL-ROOM.

GEOGRAPHY.

HOW IT MAY BE TAUGHT WITH EASE, SUCCESS, AND PLEASURE.

THE following remarks on the mode of teaching geography are intended chiefly for commercial, boarding, and middle schools, though they may be of important use to other seminaries of general learning. The writer is confident, from long experience in teaching, that a more successful mode of treating the subject has not hitherto been devised, and he has every reason to hope that its simplicity and importance will recommend it at once to every teacher. It is not intended, of course, to supersede the use of text books and readings in geography, but simply to provide a digest or compendium of them; as a sort of ledger of facts systematically condensed and arranged from the day-books and journals of general reading. It is an allowed fact, that the most effectual mode of impressing any subject upon the mind is to commit the same to writing. Great statesmen and public orators have all recourse to the pen in their important speeches and addresses, previous to their appearance in public. One of the greatest statesmen and pleaders in modern times obtained his celebrity by a defence which he is said to have transcribed three times before its delivery. And it is next to impossible for children, whose memories are not remarkably retentive, to attain to any degree of excellence, if they neglect this practice. It is equally true, that those youths who take the greatest pains in *recording* observations and *noting* difficulties, invariably distinguish themselves at school, and generally excel in the active duties of after life. Now to apply these remarks to geography. It is a matter of fact, that children, although they have been learning geography for several years, and have committed to memory all the dry details of towns, rivers, and mountains on the globe, after all really know nothing of the subject, and can scarcely define the difference between a country, a county, and a village. This is a general and just complaint of parents. Europe, Asia, Africa, and America are traversed before they know anything of their own country, or even of the county and village, I say, in which they reside. It is astonishing what ignorance prevails upon this point among all classes of society. The knowledge of England is much the same as the knowledge acquired of the world in general. It consists chiefly of a few names of places unconnected with anything interesting or instructive. Now surely this is a defect in our school teaching. We ought to know more of our country than this,—when there is scarcely a spot in it of any extent which is not distinguished by some striking peculiarity, geographical, geological, or historical. It may be the birthplace of some eminent character, or the scene of an important battle, or the site of an ancient famous mansion, monastery, or seat of learning; or it may be marked by some physical features, as a coal, chalk, or lime district—a mountain, marsh, or common; or it may be imposing scenery, important manufactures, or some grand work of art, as a curious bridge, or canal, or cathedral. All this is interesting knowledge, and, if carefully communicated, may be really instructive. It is not likely that all children will be travellers to any extent, but with our present facilities of locomotion, it is probable that many will be curious to see something of the nature and extent of the country, and of those ornaments, physical and artificial, which adorn it. The more interest they take in reading and in the great events of our past history, the greater will be their desire to travel and view the spots which mark those events. The pleasure I experienced in reading the histories of Waterloo was doubly enhanced when I traversed that memorable plain. The same kind of feeling must possess every one who visits St. Alban's, immortalized by the death of the first British martyr, and by two famous battles; and there are a thousand other spots in our island in some respects equally interesting. Now in order to give a child, or a class of children, a thorough knowledge of their country, and to facilitate their inquiries on these subjects, the following plan is recommended:—Let each child be provided with a common ciphering book, or a plain writing book of about twenty-four leaves will serve for England. Let the first two leaves be devoted to a brief sketch of English history, marking the changes of dynasty, with the chief causes and consequences of these changes, and also the different minor revolutions, with the effects they have produced. On the next two leaves describe the counties and towns, boundaries, and statistics of the country. The remainder of the book should be arranged according to the following plan:—Rule five lines neatly across each page, leaving sufficient space between the 1st and 2nd for the boundaries of the several counties; between the 2nd and 3rd for all the streams and rivers which intersect them, marking their rise, course, and fall; between the 3rd and 4th for the chief towns, with their principal productions; between the 4th and 5th for the extent, population, and soil of the country. Then rule a line lengthways on the left of the page for a narrow margin. The 1st and 3rd spaces may be filled up by the pupils from a map; the 2nd and 4th must be supplied by the teacher. This will occupy about one-third of each page; what is left may be assigned to remarks on the peculiar features and events of each county. To fill up these fully will be a work of years, and will depend upon the extent and variety of each boy's reading. When in their ordinary lessons they meet with any important circumstance connected with a particular spot, they should at their leisure note it in the remarks of the county to which it refers. By this means, in course of time, they will gain a vast amount of useful information, which will interest them through life; and if they have an opportunity of moving from place to place, or from county to county, they will see by a glance at their remarks, what in each place and county is worthy of their attention and observation. Other countries may be sketched out in a similar manner. The advantages of this plan are numerous. While the mere exercise of writing increases the interest of the children and impresses more firmly the facts upon their memory, it is not less valuable as a lesson in penmanship, spelling, punctuation, and composition.

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† Horne on the Psalms.

A TABLE OF THE COUNTIES AND TOWNS IN ENGLAND.

England is divided into *forty* counties, and *six* circuits, as under. We are indebted to King Alfred the Great for this division into counties, as also for the subdivisions into Hundreds and Tythings. *County* (from Latin *comes*, a County), so called from being formerly under a Count or Earl. The word *shire* (from Saxon *scyre*, a division) has now the same meaning as County. *Circuit* (from Latin *circum*, round, and *eo*, I go), is so called from being the round the judges take twice a year to hold their courts. Middlesex and Cheshire are not included in the circuits. They have their own judges and courts of justice, and are called counties Palatine. The circuits are the *Northern, Midland, Norfolk, Oxford, Home, and Western.*

I. NORTHERN CIRCUIT HAS SIX COUNTIES.

Counties.	*Towns.*
1. Northumberland	Newcastle, Morpeth, Alnwick, North Shields, Hexham, Berwick-on-Tweed.
2. Cumberland	Carlisle, Whitehaven, Workington, Cockermouth, Wigton, Penrith and Maryporte.
3. Durham	Durham, Bishop Auckland, South Shields, Sunderland, Hartlepool, Stockton and Darlington.
4. Yorkshire	York, Leeds, Hull, Sheffield, Whitby, Malton, Beverley, Scarborough, Ripon, Halifax, Bradford, Saddleworth, Barnsley, Wakefield, Huddersfield, Pontefract, Harrowgate, Dewsbury, Doncaster.
5. Westmoreland	Appleby, Kendal.
6. Lancashire	Lancaster, Manchester, Liverpool, Preston, Wigan, Bolton, Warrington, Rochdale, Ashton, Prescot, Oldham, Blackburn, Colne, Chorley, Bury, Burnley.

II. MIDLAND CIRCUIT HAS SEVEN COUNTIES.

1. Warwickshire	Warwick, Coventry, Birmingham, Leamington, Rugby, Stratford-on-Avon.
2. Leicestershire	Leicester, Hinchley, Loughborough, Lutterworth, Ashby, Melton Mowbray, Bosworth.
3. Derbyshire	Derby, Chesterfield, Ashbourn, Buxton, Belper, Wirksworth, Matlock.
4. Nottinghamshire	Nottingham, Mansfield, Newark, Worksop.
5. Lincolnshire	Lincoln, Boston, Gainsborough, Louth, Stamford, Grimsby, Grantham.
6. Rutland	Oakham, Uppingham.
7. Northamptonshire	Northampton, Daventry, Kettering, Peterborough, Wellingborough.

III. NORFOLK CIRCUIT HAS SIX COUNTIES.

1. Berkshire	Reading, Windsor, Newbury, Abingdon, Wallingford, Wantage, Maidenhead.

2. Bedfordshire	Bedford, Woburn, Dunstable, Luton, Leighton-Buzzard, Biggleswade.
3. Huntingdonshire	Huntingdon, St. Ives, St. Neots, Ramsey, Kimbolton.
4. Cambridgeshire	Cambridge, Ely, Wisbeach, Newmarket, March.
5. Suffolk	Ipswich, Lowestoft, Bury St. Edmunds, Woodbridge, Sudbury.
6 Norfolk	Norwich, Yarmouth, Lynn, Thetford, Wymondham, Deerham, Swaffham, Wells.

IV. OXFORD CIRCUIT HAS EIGHT COUNTIES.

1. Oxfordshire	Oxford, Witney, Woodstock, Benbury, Henley.
2. Buckinghamshire	Buckingham, Aylesbury, Newport Pagnell, Eton, Great Marlow, Wycombe.
3. Gloucestershire	Gloucester, Tewkesbury, Cirencester, Cheltenham, Stroud, part of Bristol.
4. Worcestershire	Worcester, Dudley, Stourbridge, Kidderminster, Bromsgrove, Droitwich, Evesham.
5. Monmouthshire	Monmouth, Chepstow, Newport, Abergavenny.
6. Herefordshire	Hereford, Ross, Leominster, Ledbury.
7. Shropshire	Shrewsbury, Bridgenorth, Oswestry, Madeley, Ellesmere, Ludlow, Wellington.
8. Staffordshire	Stafford, Litchfield, Wolverhampton, Bilson, Burton-on-Trent, West Bromwich, Tamworth, Wednesbury, Walsall, Newcastle-under-Lyne.

V. HOME CIRCUIT HAS FIVE COUNTIES.

1. Essex	Chelmsford, Colchester, Harwich, Malden, Braintree, Coggleshall, Witham.
2. Hertfordshire	Hertford, Royston, Hitchen, St. Albans, Ware, Barnet, Stratford.
3. Kent	Maidstone, Greenwich, Woolwich, Gravesend, Chatham, Rochester, Margate, Ramsgate, Deal, Dover, Canterbury, Tonbridge Wells, Sheerness, Folkestone, Dartford, Sandwich, Faversham, Ashford, Hythe, Romney.
4. Surrey	Guildford, Croydon, Farnham, Kingston, Epsom, Richmond, Dorking.
5. Sussex	Chichester, Hastings, Winchelsea, Arundel, Brighton, Lewes, Horsham, Rye, Eastbourne, Worthing.

VI. WESTERN CIRCUIT HAS SIX COUNTIES.

1. Hampshire	Winchester, Portsmouth, Gosport, Southampton, Lymington, Basingstoke, Ringwood, Andover, Ryde, Newport, Cowes.
2. Wiltshire	Salisbury, Wilton, Devizes, Bradford, Trowbridge, Westbury, Warminster, Melksham, Marlborough.
3. Dorsetshire	Dorchester, Poole, Weymouth, Lyme-Regis, Bridport, Wareham, Blandford, Shaftesbury.

4. Somersetshire . . .	Taunton, Bath, Bristol, Frome, Wells, Bridgewater, Wellington, Yeovil, Glastonbury.
5. Devonshire	Exeter, Sidmouth, Dartmouth, Plymouth, Teignmouth, Tavistock, Torquay, Tiverton, Barnstaple, Bideford, Exmouth, Brixham.
6. Cornwall	Launceston, St. Ives, Penzance, Helstone, Falmouth, Penryn, Truro, Camborne, St. Austell, Redruth, Bodmin.
Cheshire	Chester, Stockport, Macclesfield, Congleton, Birkenhead, Middlewich, Nantwich.
Middlesex	London with Westminster, Uxbridge, Brentford, Harrow, Staines.

KENT.

Boundaries.—N. by Essex—Mouth of the Thames; S. by Sussex; E. by Straits of Dover; W. by Surrey.

Rivers.—The THAMES on the north, which runs into the German Ocean. The MEDWAY and STOUR, which run from south to north into the same.

Chief Towns.—MAIDSTONE (Paper Manufacture), GREENWICH (Observatory), WOOLWICH (Military College and Arsenal), GRAVESEND (Watering Place), CHATHAM (Dock-yard), ROCHESTER (Cathedral), MARGATE, RAMSGATE (Watering Places), SANDWICH, DEAL, DOVER (Castle), CANTERBURY (Cathedral), TONBRIDGE (Toys), DARTFORD.

Extent, Population and Soil.—Extent 1557 square miles; Population 548,337; Soil various; the range of hills called North Downs extends through Kent. It consists in a great measure of chalk.

Remarks.—HARVEY, discoverer of the circulation of the blood, was born at Folkestone. Round Canterbury, there are 2000 acres of Hopground. General Wolfe was born at Westerham, killed at the battle of Quebec in Canada, A.D. 1760. At Milton, eleven miles from Maidstone, native oysters are found. Rochester Cathedral was founded by Ethelbert; Horsa, the first Saxon chieftain was killed at Ailsford, A.D. 455. The battle at Crayford put Hengist in possession of this county, A.D. 457. At Feversham, Stephen was buried, 1134, and Henry IV., at Canterbury, 1413. Choir of Canterbury Cathedral, built in the 12th century, the Crypt in the time of William the Conqueror. In Kent St. Augustin landed with forty monks, A.D. 596, to convert the Saxons, and was kindly received by Ethelbert and his wife Bertha. The manor-house of Deptford, called Saye's Court, was once the residence of the famous Evelyn, also of Peter the Great. No traces of this at present remain. At Greenwich is the Royal Hospital for Sailors. The notorious Wat Tyler lived at Dartford in the reign of Richard II. At Eltham the friends of Sir John Oldcastle, Lord Cobham, attempted to seize King Henry V. This cost Cobham his life—he was hung and burnt at Sevenoaks. Jack Cade, the pretended John Mortimer, defeated the Royal troops, and entered London in triumph, but was afterwards defeated and slain in a garden by a man named Iden. Thomas á Becket, the Archbishop, was murdered before the Altar of Canterbury Cathedral by four Knights. St. Augustin's at Canterbury was restored, A.D. 1848, by J. B. Hope, Esq., M. P., and converted into a missionary college. The hill on which Dover Castle stands is about 470 feet high. From this hill the cliffs of Calais may be seen on a fine day. The distance from Dover to Calais is about 21 miles. The Cinque Ports lie on the south of Kent. They are the harbours of Sandwich, Romney, Hythe, Dover and Deal. Their dependants are Rye, Hastings, Winchelsea, in Sussex. These ports in olden times enjoyed many privileges for defending the coast from invaders. Each Port had to furnish 21 ships, ready for war within 40 days after the King's summons, each ship containing 21 good soldiers, fully equipped for service. They were to serve 15 days at the expense of the Port,—if required longer they received pay.

YORKSHIRE.

Boundaries.—N. by DURHAM and WESTMORELAND, S. by LINCOLNSHIRE, NOTTINGHAMSHIRE, DERBYSHIRE, E. by the German Ocean, W. by LANCASHIRE and part of CHESHIRE.

Rivers.—The TEES on the North which runs into the German Ocean. The OUSE with its tributaries, the DERWENT, SWALE, YORK, NIDD, WHARFE, AIRE, which runs into the Humber, the HULL which also runs into the Humber; and the RIBBLE, which runs westward into the Irish Sea.

Chief Towns.—YORK (Cathedral), LEEDS (Clothing), HULL (Sea port), SHEFFIELD (Cutlery), WHITBY (Coals), SCARBOROUGH (Watering place), RIPON, HALIFAX, BRADFORD, WAKEFIELD (Clothing Towns), HUDDERSFIELD, PONTEFRACT (Castle), HARROWGATE (Mineral Waters).

Extent, Population, and Soil.—Extent, 5961 square miles; Population 1,591,584. Soil very various, owing to Coal-beds, Moor-lands, Wolds which characterize this county.

Remarks.—PIPE-CLAY found in LEEDS; the Emperior Severus died at York, A.D., 212; also the Emperior Constantine, father of Constantine the Great, A.D. 306. York Minster built A.D. 1171; the present nave in Edward I.'s reign. Printing established at York, 38 years after its introduction into England. It was commenced in Abbot's House, Westminster, A.D. 1471, by William Caxton: near Cawood, nine miles south of York, are the ruins of an old mansion built by Cardinal Wolsey. Archdeacon Paley was educated at the Grammar School of Giggleswick. At Ravenspur or Ravensburgh, near the Humber, now washed away by the sea, Henry Bolingbroke landed with fifty followers. He defeated Richard II., and succeeded to the throne as Henry IV. of Lancaster. Edward IV., landed with a few followers at the same place, some years afterwards. Bradford Grammar school founded by Charles I. In Middleton Castle, Edward IV. was confined when taken prisoner by the Earl of Warwick. At Pontefract Castle Richard II. was murdered by Sir Piers of Exton and seven attendants. Earl of Lancaster, cousin of Edward II., was beheaded at the same place. At Wakefield, in 1461, Queen Margaret, wife of Henry VI., with the Lancastrians, defeated the Yorkists, took the Duke prisoner, beheaded him and placed his head on the gates of York. At Towton also there was a great battle between the Yorkists and Lancastrians, A.D. 1461, in which the former conquered. At Marston Moor an engagement took place between the Royalists and Roundheads, A.D. 1644, in which Cromwell first distinguished himself. The Royalists were defeated. The *York Plain* is the most extensive valley in England. At North Allerton the "battle of the Standard" was fought between David of Scotland, who came to the aid of his niece Matilda, and the English in support of King Stephen the usurper. William Rufus was born at Selby; John Wickliffe was born at Wickliffe in this county, died 1385, A.D. Sixty miles of country between the Humber and the Tees was laid waste with fire and sword by William the Conqueror for rebellion.

MIDDLESEX.

Boundaries.—N. by **Hertfordshire**; S. by **Surrey**; E. by **Essex**, and part of **Kent**; W. by **Buckinghamshire**.

Rivers.—**Thames**, **Colne** and **Lea**, which are tributaries of the **Thames**.

Chief Towns.—**London** (the Metropolis), with **Westminster**, **Brentford**, **Uxbridge**.

Extent, Population and Soil.—Extent, 282 square miles, Population 1,576,636. Soil generally fertile.

Remarks.—London stands in a basin of clay of a slate colour. Westminster School was founded by Queen Elizabeth. Charterhouse by Thomas Sutton, A.D. 1611, on the site of a Carthusian Monastery. St. Paul's School by Dean Colet, who entrusted it to the Mercers' Company, 1510. Merchant Tailors' School by the Merchants' Company, 1516. The School at Harrow on the Hill, nine miles from London, was founded by John Lyon of Harrow, 1560. The first Church dedicated to St. Paul, was built by Ethelbert the Saxon King, on the site of the present building. This and others afterwards erected on the same spot perished by fire. The present building was designed by Sir Christopher Wren, cost £73,600, railing £12,500. The Crown Inn at Uxbridge is known as the Treaty House, being the place in which Charles I., and the Commissioners met, 1644, A.D. Horne Tooke was born at Westminster. Somerset House was built by Protector Somerset, with the spoils of sacrilege, in Edward VI.'s reign. St. Thomas's Hospital, and St. Bartholemew's were founded by Edward VI., as was Bridewell for criminals. The following Kings were buried at Westminster, Henry III., A.D. 1272; Edward I., A.D. 1307; Edward III., A.D. 1377; Henry V., A.D. 1422; Henry VII., A.D. 1509; Edward VI., A.D. 1553; Mary, A.D. 1558; Elizabeth, A.D. 1603; James I., A.D. 1625; Charles II., A.D. 1685; William and Mary, A.D. 1702 and 1694; Anne, A.D. 1714; George II., A.D. 1760; fourteen out of thirty-five. At Hounslow Heath King James II. pitched his camp. The great fire in 1666, A.D. broke out in Pudding-lane, and destroyed 13,000 houses, 89 churches, and St. Paul's Cathedral. The Library in the British Museum contains as many as 435,000 volumes. Westminster Hall was built by William Rufus; St. Peter's, or Westminster Abbey, was built by Edward the Confessor. There are two colleges in London (King's and University College), and seven bridges over the Thames. John Milton was born in Bread-street, Cheapside, 1608, died 1674.

Remarks on other counties which may be added to.

Northumberland.—The Cheviot Hills lie to the north, renowned for the "*Chevy Chase*" of old. This was an engagement between Earl Douglas and Percy, A.D. 1381, at Otterburn. The Picts, or Roman wall, begun by Agricola, and increased and strengthened by the Emperors Hadrian and Severus, lies chiefly in this county. The poet Akenside was born at Newcastle. Malcolm, king of Scotland, was killed at Alnwick, in the reign of William Rufus. At Hexham a battle took place between the Yorkists and Lancastrians, A.D. 1462, in which Queen Margaret was defeated. At Flodden Field the English, under the Earl of Surrey, completely defeated the Scotch under James IV., 1513. The latter was killed. The town of Berwick-on-Tweed was famous in olden times; being on the borders, it was the scene of many skirmishes. At Halidon Hill, near Berwick, Edward III. worsted the Scots, A.D. 1333.

Northamptonshire.—The county town is famed for boots and shoes. Peterborough was one of the five bishoprics badly endowed by Henry VIII. At Naseby, near Daventry, Fairfax and the Roundheads defeated the Royalists, 1645. Queen's Cross, a little out of Northampton, is one of the crosses erected by Edward III., in memory of his Queen, Eleanor of Castile. At Geddington, Waltham, and London are others. They mark the places where the body rested on the way for interment. At Fotheringay Richard III. was born, and Mary Queen of Scots imprisoned 18 years. At Peterborough she was interred the day after her execution, but was removed to Westminster by her son, James I., A.D. 1612. At Northampton a battle was fought, A.D. 1460, between the houses of York and Lancaster.—Henry was defeated by the Yorkists, under Warwick. Part of Peterborough Cathedral built in the reign of Henry I.

Hampshire.—Winchester College and part of Cathedral built by William of Wickham, reign of Richard II. Dr. Watts was born at Southampton. At Titchfield House Charles I. abode some time after the defeat at Naseby; from this he removed to Carisbrook Castle, Isle of Wight, where he was detained a prisoner. In Newport Grammar School he met the Parliamentary Commissioners.—The discussion ended fatally to himself. The New Forest, made by William the Conqueror, contains about 63,000 acres, which belong to the Crown. Hayling Island was partly washed away in the time of Edward III. Basingstoke was the birthplace of that famous English scholar of the 13th century, called John of Basingstoke, who went as far as Athens to study Greek. Perkin Warbeck, the supposed impostor, was seized at Beaulieu, in Hants. Southampton Grammar School, founded by Edward VI.—About three miles from it stand the ruins of Netley Abbey, built by Henry III., A.D. 1239. From Hurst Castle Charles I. was removed to London. Saxon kings buried at Winchester—Egbert, King of Wessex; Alfred the Great and his son; Edward the elder; Edred and Edwin, sons of Edward the eldest; Davis of Lye; Canute the Great; Harold, and Hardicourt. William Rufus was buried and Henry III. born at Winchester. Hospital of St. Cross founded by Stephen. Portsmouth is a great seaport and naval arsenal, and has the largest dockyard in the kingdom. Ryde, Cowes, and the Isle of Wight are watering places.

Somersetshire.—Wells was made a Bishop's See in the time of Edward the Elder. Choir built in Henry the Eighth's reign. Bristol one of the five bishoprics endowed by Henry VIII. out of church spoils. The great Roger Bacon was born at Ilchester.—Locke, the philosopher, at Wrington, near Bristol. In the neighbourhood of Bridgewater, on the east side is Sedgmoor, where the Duke of Monmouth was defeated by the troops of James II. At Lansdown, near Bath, a battle was fought between Charles and the Parliament. Glastonbury, far famed in olden times. The three Saxon kings—Edmund I., Edgar the Pacific, and Edmund Ironside were buried in the Abbey of Glastonbury. At the junction of the rivers Tone and Parrel is the Isle of Athelney, in which Alfred the Great lay concealed from the Danes in the house of Dinewulph, a shepherd, afterwards made Bishop of Winchester. Bristol was the first place in which brass was wrought. The Free School at Bath was founded by Edward VI. Chedder, twenty miles from Bath, is noted for cheese.

LESSONS ON THE RIVERS OF EUROPE.

(*Continued from p.* 214.)

Rivers entering the Atlantic Ocean.

13. THE GUADIANA has its sources in the southern part of New Castile, passes through this province, then that of Estremadura, and after dividing Seville from the Portuguese province of Algarve, enters

the Atlantic Ocean. It totally disappears, in one part of its course, for about fourteen miles. It is 450 miles in length, and is navigable for nearly 50 miles.

Ciudad-Real, the capital of La Mancha, is situated in a plain near the Guadiana, and is the most renowned mart in Spain for mules. A great fair is annually held here for the sale of cattle, mules, and asses. Population 10,000. The imaginary exploits of the famous Don Quixote are described as having had their origin, for the most part, in this locality.

Badajoz, the capital of Estremadura, is on the south bank of the Guadiana, and near the frontier of Portugal. It occupies an important military station, and is strongly fortified, having formidable walls and bastions, while a wide and deep fosse surrounds it on all sides. It has stood some memorable sieges, among which may be mentioned that by Wellington in April, 1812, when, after a siege of twelve days, it was taken by storm, and the garrison, with its general, became prisoners of war. Badajoz has a few manufactures of linen and woollen stuffs, soap, china, and leather. Population 11,700.

14. The TAGUS, the *Tajo* of the Spaniards, and the *Tejo* of the Portuguese, rises in the Sierra Morena, on the eastern side of the Spanish table-land. It flows in a general direction of west by south, through Spain and Portugal, and enters the Atlantic Ocean near Lisbon, where it forms one of the most secure and capacious harbours in the world. With its numerous tributaries, it drains the great plain between the Castilian mountains and the Sierra de Estrella on the north, and the Sierra Toledo and the highlands of Evora on the south. It is about 550 miles in length, and is navigable for small ships as far as Santarem, a distance of about forty-six miles from Lisbon.

Madrid, on the left bank of the *Manzaneres*, a tributary of the Tagus, the capital of Spain, is situated on a sandy and sterile table-land, at an elevation of 2200 feet above the sea. The city occupies an area of about five miles in circumference, and is surrounded by a brick wall 20 feet in height, which contains fifteen gates. The streets are wide, and the houses large and well-built, but the general aspect of the city is gloomy and sombre. Among public buildings may be mentioned the royal palace, which is considered one of the finest royal residences in Europe. There are numerous promenades; but the most favourite place of resort, both to residents and strangers, is the *Prado*, a broad and spacious walk on the east side of the city, two miles in length, and adorned with rows of trees and fountains. Madrid has scarcely any manufacturing industry. There are, however, manufactories of porcelain and carpets, which are carried on at the expence of the Government. Population, 216,000. About twenty miles to the north-west of Madrid, at the southern base of the Castilian mountains, and at an elevation of 3260 feet above the sea, is the Escurial, one of the royal residences. It is in the shape of a gridiron, and was erected by Philip II. of Spain, in consequence of a vow made by him, on the day of the battle of St. Quentin. This battle happened on the anniversary of St. Lawrence, to whom the place was dedicated, and who was put to death by torture on a grate of iron, made red hot, A.D. 258. This magnificent structure has been termed by the Spaniards the eighth wonder of the world. It is 740 feet in length by 580 in breadth, and is said to have cost eight millions sterling.

Toledo, one of the most ancient and celebrated cities of Spain, lies on the north bank of the Tagus, about forty miles south-west of Madrid. It was the largest city in the Christian part of Spain in the middle ages, and in the fourteenth century had 200,000 inhabitants. It possesses a cathedral, which is the largest, and by some considered to be the finest in Spain. It is also the see of an archbishop, who is the primate of all Spain. During the fifteenth and sixteenth centuries, Toledo was celebrated for its manufactory of sword-blades, as well as for silks. The fabrication of the former is still carried on, though upon a greatly diminished scale.* Population, 13,500.

Talavera de la Reyna, on the Tagus, is about sixty-four miles from Madrid. It was formerly renowned for its silk manufactories, and is famous for the victory gained by Wellington over the French, on the 27th and 28th of July, 1809.

Lisbon, on the right bank of the Tagus, about nine miles above the bar or entrance of the river, is the capital of Portugal. It is built on a succession of hills, and rises in the form of an amphitheatre, from the banks of the river. The city is, in general, ill-built, and consists of narrow, winding, and dirty streets. The new town, a part of the city built since the great earthquake, is, however, regular and handsome. A magnificent aqueduct, built in 1743, entirely of marble, supplies Lisbon with good water. This city has frequently suffered by earthquakes, the most formidable of which was that of 1755, when one-half of the city was destroyed, and more than 30,000 of the inhabitants perished. Lisbon is a place of considerable commerce, and has one of the finest harbours in the world. The manufactures consist of silk, paper, soap, and leather; and its goldsmiths and jewellers display great taste in gold and silver works and jewellery. The exports consist of wine, fruits, and oil. Population, 280,000.

15. The DOURO, or DUERO, rises in Spain, between Saragossa and Burgos, flows through Old Castile, Leon, and Portugal, and empties itself into the Atlantic Ocean, about two miles below the city of Oporto. It drains, with its numerous tributaries, some of the finest and most fertile regions of Spain and Portugal, and has a length of nearly 500 miles. The harbour of Oporto cannot, however, be entered by large vessels, on account of the bar at the mouth of the river. The Douro is navigable for about seventy-five miles; flat-bottomed boats can, however, ascend as high as 100 miles from the sea. Among its tributaries may be mentioned the *Agueda* and the *Tormes*, on its left bank.

Salamanca, on the Tormes, a tributary of the Douro, was once famous for its university, now, however, of little importance. The city is badly built, with narrow, crooked, and dirty streets. It has, however, some fine squares with ornamental fountains. Some of its finest buildings were either destroyed or riddled with cannon-shot during the Peninsular war. Near the town was fought the memorable battle of Salamanca, on the 22nd July, 1812, when the French were completely defeated by the British under Wellington. Population, 20,000.

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* The famous Toledo blades are shown in the Spanish section of the Great Exhibition, No. 266.

Ciudad Rodrigo, on the Agueda, a tributary of the Douro, is a very strong town, and the defence of Spain against Portugal, from the frontiers of which country it is distant about sixteen miles. This town was taken by the French in 1810, under Marshal Massena; and in 1812 it was stormed by the English and Portuguese under Wellington, who took it after a siege of twelve days. Great quantities of ammunition, and a large battering train fell into the hands of the conquerors. Wellington, for this important achievement, received from the Spanish the title of Duke of Ciudad Rodrigo, and from the Portuguese that of Marquis Torres Vedras. The town has some trade in soap, leather, linen, and woollen-stuffs. Population, 11,000.

Oporto or *Porto*, anciently Calle Portus, on the north bank of the Douro, about two miles from its mouth, is the second city in Portugal. It rises like an amphitheatre from the bank of the river, and is built partly on the acclivities of two hills, and partly on a plain between them and the Douro. It is, in general, well built, and the houses are all whitewashed. It is said to be the most agreeable and the cleanest of all the Portuguese towns. From its situation on the Douro, Oporto is the emporium of a large portion of Portugal, and ranks as one of the most commercial cities in Europe. It is noted especially for its trade in Port wine, which derived its name from being shipped at this city. It has manufactories of cotton, linen, silk, and wool, with tanneries, roperies, and ship-building yards. Population, 80,000.

16. THE MINHO has its sources in the northern part of Galicia, in Spain, flows through this province, and after forming the boundary between Spain and Portugal, enters the Atlantic. Its length is from 125 to 150 miles. W. M'L.

(*To be continued.*)

Correspondence.

IMPORTANCE OF ARITHMETIC.

SIR,—You deserve thanks for your remarks on the importance of arithmetic as a branch of liberal education. I should be glad to see them followed by observations on the method of teaching arithmetic, such as many of your readers, probably, could record from their experience. I am a young teacher, and have to instruct between thirty and forty boys in subjects from vulgar fractions upwards, and in algebra, in three weekly periods of an hour and a half each, at the end of long days of classical work; and I find it a task somewhat difficult to fulfil thoroughly.

Your obedient Servant,
H., Trin. Coll. Cam.

[We shall be glad to try to meet our correspondent's wish; but we should recommend him in the mean timé to get more hours in the week for this work. It is the great evil of the present day to be doing too many things at once, and allowing too little time for each].

LATIN VERSES.

Sir,—In giving some hints last month about verses, you were led to urge that a simple version of the fable in hand should be shown to the pupil after his own had been attempted and criticised. This was recommended as an important part of the plan. It has occurred to me that where masters are already overworked, it is too much to expect them to be always ready with a version of their own. As your journal circulates in a great measure among teachers, and as you are doubtless anxious to make it as practically useful as you can, perhaps you may allow a not uninterested looker-on, who has some leisure, to send a couple of fables, turned, as recommended, in a very simple way. They may be perhaps useful to those who have not the time to make a better version for themselves. I send also the original Latin prose, which I think should be printed with them.

"RUSTICUS ET ANGUIS.

"Rusticus quidam nutrierat Anguem. Aliquando autem iratus, bestiam petit securi. Ille non sine vulnere evadit. Posteà Rusticus ad paupertatem redactus, ratus est id infortunii propter. Anguem læsum sibi accidisse. Supplicat igitur Angui, ut redeat. Ille ait, Ignoscere se quidem, sed redire nolle ad eum, cui tanta sit domi securis."

Rusticus ex agris latum nutriverat Anguem;
At forte iratus perculit ense feram:
Is tamen evasit, sed non sine vulnere. Tempus
Rusticus ex lauto post breve pauper erat;
Sævitiæque memor veteris, causamque malorum
Hanc reputans, Anguem lata per arva petit.
Supplicat inventum ut redeat: tunc retulit ille,
"Tela tenente domo, non rediisse volo."
Si monitum quæras; hosti ne crede potenti:
Quo læsus, sapiens horret adire locum.

"CERVA ET LEÆNA.

"Cerva, venatores fugiens, in speluncam se recepit. In Leænam autem ibi cum incidisset, ab eâ comprehensa est: moriens autem ingemebat, 'Hei mihi! Homines dum fugio, in ferarum immitissimam incidi."

Dum fugimus parvum, magnum persæpe periclum
Obfuit: hoc verum fabula nostra docet.
Forte, canes fugiens, se Cerva recepit in antrum,
Qua latebras, vultum torva, Leæna locat.
Nec mora: capta fugax; tum sic moritura gemebat;
"Heu! leve dum fugio, me capit acre malum."

It would be highly satisfactory to me to find that the plan here suggested is acceptable to your readers. A Tutor.

ON COMPOSITION OF LATIN AND GREEK.

Sir,—There is scarcely anything more troublesome or more unsatisfactory than the task of *correcting* Latin or Greek prose composition.

Indeed, to a man who likes the work of tuition this is the only part of it that deserves the name of task. The difficulties and labour attending this particular work, if performed in the usual way, are very great: any suggestion therefore that may help to lessen them will probably be acceptable to many of your readers.

It is a common practice when boys are pretty well at home in the usual exercise-books to give them a passage from the Spectator or some such book, to translate into Latin prose. They turn the passage, each probably after a fashion of his own. If the labour expended by the boys is not to be thrown away, each exercise has to be carefully looked over *with* the writer of it. One may imagine the various ways in which the sentences will be turned—the various degrees of beauty and deformity that will be exhibited: one exercise is nearly Latin, but not quite; another nearly English, in a Roman disguise, not a dress; and besides there will be found sundry substantial mistakes in grammar and construction. No one who has not tried it can imagine the toil and brain required to look over in any profitable way a dozen of such medleys; to point out and correct the absolute errors, and to dovetail improvements into the original work, so that the result may be something like Latin; for Latin it never can be made.

No wonder that, as a rule, it is so indifferently done; particularly where the time allowed for it is short. Nay, we are assured that there are schools where, the number of boys being great, scarcely any attempt is made to correct exercises of this kind at all. This, however, is so absurd as scarcely to be credible, and if ever true, the plan must have been followed only for a short season and under peculiar circumstances. Far better were it to leave boys in the play-ground than set them, for decency's sake, to waste their strength in soiling paper with that which is neither Latin nor English, and in acquiring habits of composition which, like bad spelling, it is next to impossible to eradicate. Where this exercise cannot be done thoroughly, let it be left entirely undone.

There is no doubt that it can be done thoroughly, though never without a considerable amount of labour. Let the master take advantage of some winter vacation. One can scarcely expect him to employ himself in such drudgery in the summer; not, at all events, in the summer of the Exhibition. Let him translate into a book thirty or forty separate chapters of Cæsar's Commentaries, selecting chapters that treat of a variety of subjects, and turning them into good plain English sentences. In addition to this, let him select as many more passages of a reasonable length from Cicero's Offices, Orations, or other works, where the sentences are short and simple. He would do well to take passages from parts of these authors which are but little read in his school, annexing to each passage in the manuscript such a mark as would refer himself only to the original. This last suggestion is made, that, in using these passages, the less industrious pupil may not be tempted to become also less honest; that is, lest he should find out the part whence the passage was taken, and copy it, altering, it may be, the arrangement of the words or the words themselves.

With these supplies the master is equipped for the next campaign, and, with an additional page now and then, almost for life. He may dictate a chapter to his pupils, making it a kind of lesson—not always an unnecessary lesson—in English orthography. When the Latin exercise is placed before him, he knows what he is about; he has the original ready; he has a standard to refer to, without continually drawing on his own resources; he and his pupils see Latin—real Latin—in the place of the crude and undigested masses which their ignorance and his haste or weariness usually jumble together. The work is pleasant and satisfactory to him, though still requiring some labour, which a good master never grudges; and to them it is highly profitable.

It is probable that some such system would have been general ere this, had it not been supposed that it would lead pupils or others to think that the teacher could not write Latin himself; and hence he is afraid to adopt it. In point of fact, however, such a mode of proceeding does not prove, and ought not to suggest, any notion of the kind. A man may be able to write very elegant Latin when quiet and in his own study, and yet not be able, with either satisfaction to himself or profit to those under his charge, to patch up a dozen indifferent versions of the same paragraph, especially against time, and while he is responsible for the good order of his school or class. Neglecting the work entirely is surely as weak a proof of scholarship as correcting an exercise with the aid of Cæsar or Cicero can possibly be; while the comfort of the master and benefit to the boy are increased many-fold.

But, above all, in teaching composition, *have in hand but one kind at a time*. We are convinced this is a golden rule. Never mix the kinds. Go on with one at once, for a month at least; if possible, for a longer time; we had nearly said, the longer the better. Prose and verse, Latin and Greek, being in some respects alike, and in others distinct, should never be practised in the same day, nor even in the same week. We repeat, practise your pupils only in one kind of composition at once, if you would succeed. Let them become tolerably proficient and ready in one thing, and then they may proceed to another without risk of confusion. L. C.

Notices of Books.

A MANUAL OF BRITISH GEOGRAPHY; EMBRACING THE PHYSICAL, INDUSTRIAL AND DESCRIPTIVE GEOGRAPHY OF ENGLAND AND WALES, SCOTLAND AND IRELAND. BY WILLIAM HUGHES, F.R.G.S., LATE PROFESSOR OF GEOGRAPHY IN THE COLLEGE FOR CIVIL ENGINEERS, &c. &c. (Edinburgh: *Adam and Charles Black.* 1851.)

A MANUAL OF EUROPEAN GEOGRAPHY; EMBRACING THE PHYSICAL INDUSTRIAL, AND DESCRIPTIVE GEOGRAPHY OF THE VARIOUS COUNTRIES OF EUROPE. BY WILLIAM HUGHES, F.R.G.S., LATE PROFESSOR OF GEOGRAPHY IN THE COLLEGE FOR CIVIL ENGINEERS, AUTHOR OF "A MANUAL OF BRITISH GEOGRAPHY," &c. (Edinburgh: *Adam and Charles Black.* 1851.)

THESE new productions of Mr. Hughes will form a most valuable addition to our educational books. They contain, within small compass, a vast amount of useful practical information on the subject of which they profess to treat, and their phraseology and arrangement are interesting and attractive. We strongly recommend them, both as *text-books* for teachers, and as general *reading-books* for all persons interested in this important subject. Nor do we see any reason why these "Manuals" may not be used also with much advantage as *class-books* in colleges and commercial schools, and even in the upper classes of our parochial schools. If the knowledge of the earth, of its climate, soil, and productions, and of the various conditions of men, with their social relations, be a valuable branch of instruction, it is doubly so to those who get their living from the soil. To them, a knowledge of their country, of the peculiarities of its soil, of its climate and productions, is something more than a refined accomplishment—it is a means of existence. And if this existence can be improved —if the toil and drudgery of the poor man's life can be sweetened or alleviated by these "intellectual implements and tools," we surely do him injustice by withholding them from him. The study of geography is the most comprehensive of all studies, for it embraces every branch of human science, and those persons who have neither time nor ability to contemplate the mysterious economy of nature,—the unity as well as the diversity of creation,—and those secret links which knit together the animal, mineral, and vegetable worlds, may still have cause for thankfulness to Mr. Hughes for bringing within their comprehension so much material for self-improvement and moral reflection. It is surely something to have our thoughts directed to the beauties of nature and art, to those striking peculiarities of climate, situation, and soil, which as much determine the condition and occupations of men, as they influence the productions and interest the traveller; and also to be reminded of those famous spots at home and elsewhere which mark the great events of past ages, the revolutions of kingdoms, the seats of learning, or the birthplaces of eminent men. These are matters of common interest. In a pamphlet published four years ago, entitled "Remarks upon Geography as a Branch of Popular Education," the author showed the utility of the subject,—*why it should be taught;* in the present publications he has shown most satisfactorily its practicability,—*how it may be taught.* He has stripped it of those dry and forbidding features which were wont to characterize this branch of science; and instead of presenting us with what Mr. Hughes truly terms "lists of names arranged in a dull and monotonous succession of alphabetical and other tables," which, to the disgust of many a tyro, formed the principal ingredients in the old treatises of geography, he has favoured us with an entertaining description of the different features of the countries of Europe—of England in particular—of their position, magnitude, form, surface, climate, natural productions, population, manufacturing and commercial emporiums, picturesque scenery, the relative positions of mountains and valleys, of moorlands and marshes, and distinguished places, with a variety of other matter, highly interesting and instructive to every lover of learning.

SCHOOL SERIES, EDITED BY THE REV. G. R. GLEIG, M.A., INSPECTOR-GENERAL OF MILITARY SCHOOLS. SECOND BOOK OF HISTORY; THE BRITISH COLONIES. THIRD BOOK OF HISTORY; BRITISH INDIA. FOURTH BOOK OF HISTORY—SACRED HISTORY, IN TWO PARTS. PARTS I. AND II.

AN EXPLANATION OF ENGLISH GRAMMAR, FOR BEGINNERS, BY WALTER M'LEOD, HEAD MASTER OF THE MODEL SCHOOL, ROYAL ASYLUM, CHELSEA. (London: *Longman, Brown, Green, and Longmans.*)

These five volumes are a fair specimen of Mr. Gleig's School Series, and upon the whole we consider them to be highly satisfactory. Of course they vary in point of excellence: they differ much in character and *quality*, as is usually the case in a series of publications. The second and third books of History are decidedly useful and instructive works. In the former we are presented with a brief and interesting description of the British Colonies and dependencies in the various parts of the world. The latter is an instructive sketch of British India in particular, beginning with the earliest notices of that extensive and remarkable country preserved among the records of antiquity, and continuing, in chronological order, the various changes of dynasty and constitution, &c. which it has undergone up to the present period. The subjects of these volumes are perfectly novel to the generality of readers. We may venture to say that there is scarcely one person in thirty, including teachers of every description and denomination, who has really any knowledge of the history of our colonies and Anglo-Indian territories; of their original inhabitants, their manners, religion, occupation, and subjugation; of the wars, massacre, bloodshed, and horrid cruelties which preceded these conquests or arose from these possessions; of the influences which they have had on the commerce of Europe in general, and the wealth and character of England in particular; of the eminent men who have been connected with these dependencies, whether as statesmen, or generals, or merchants, or ecclesiastics, or antiquaries; or, indeed, of their productions, natural features, and local peculiarities. These subjects certainly deserve more attention than they have hitherto received, and we hope these little volumes before us, which are well written, moderate in price, and contain much valuable information on these matters, will do something towards removing the prevailing ignorance.

Of the fourth book of History we cannot speak so favourably. The design and arrangement are good, but the details are defective. Nevertheless it may be of service to a class "which has overcome all the ordinary difficulties of the English language," though it will never answer the purpose for which it was intended until it has been carefully revised, To explain what we mean:—The object of the writer (in his own words) is "to bring down to the capacities of *children*, and of *uneducated* grown persons, the sacred history of mankind. All that the Word of God teaches me (he adds) in reference to so important a subject, I strive to communicate to others in its simplicity." Now, whatever merit may be due to this design, we must confess the result to be a failure. The phraseology throughout is very difficult, the language is too rich and elegant, the sentences too complicated, the allusions too refined for children and the uneducated. Our space will only allow us to give a few of the many instances which might be produced; these, however, we consider unnecessarily difficult. "To fabricate a tabernacle," "a patrimonial estate reverted," "recapitulation of precepts," "lines of circumvallation drawn," "uncontaminated by familiar intercourse," "to sell to him, in a moment of marvellous weakness, the *rights of primogeniture*," "expelled the native dynasty," "corroborated by the dictates of an enlightened conscience," "transferred the trappings of that kingly power," "torn with democratic factions," "sanguinary policy," "detailed analysis," "contrived an artful scheme to enlist the king's consistency on the side of his prejudices." These, with a variety of such words as "pusillanimity," "blandishments," "emancipated," "consummated," "inebriety," "functionaries," "simultaneously," "reconnoitre," &c. &c. which abound in the work, we consider beyond the comprehension of an ordinary child, and we fear they would puzzle not a few of our ordinary teachers.

It is well known that our parochial schoolmasters are not generally skilled in the classics, or even in the principles of etymology; a dictionary must be consulted for all these long uncommon words. This would require time, and often cause great interruption to lessons. Besides, it is far from easy to explain some of these phrases to others, even when the teachers have mastered their meaning. These objections seriously affect the utility of this work. We shall be glad to see them removed, for in other respects it promises to be a valuable addition to our school books.

The "Explanation of English Grammar for Beginners" is evidently the production of a practical man, and as such we strongly recommend it. We are always pleased to see *practical* men interesting themselves in the cause of education and aiding others with the benefit of their experience. This is what we most need in our parochial schools. Though we abound with school books it is a general and just complaint that there are few that can be considered really good; that in reality we are starving in the midst of plenty. We have been crammed with food which we can neither masticate nor digest. We do not want clever works with studied and elegant phraseology, but common subjects treated in a common simple way; not disguised in the gorgeous attire of classic or Gallic language, but decently adorned in our Saxon mother tongue, the vulgar tongue of the multitude. Mr. M'Leod in his grammar for juveniles has fallen in with our notion. He modestly admits that in the arrangement of his work he has deviated from the usual course, but this can really be no objection considering how the usual course in these matters has departed from common sense and daily experience. We admire the plan because it is simple and perfectly natural, and we have no doubt as to its success.

THE ELEMENTARY CATECHISMS FOR HOME AND SCHOOL, BY THE EDITORS OF THE ECONOMIST. Price 4d. each. GEOGRAPHY, FIRST LESSONS, GARDENING, HISTORY OF ENGLAND. (*Groombridge & Sons, Paternoster Row.*)

THESE Catechisms, which are designed for the purposes of home education as well as for school use, contain, within the brief compass of sixty-four pages, a great deal of useful general information. Add to this, they are neat little volumes and very moderate in price. The catechism on gardening is decidedly the best of the three ; it is peculiarly interesting and instructive, and we strongly recommend it to the young. It is no easy matter to write good and practical catechisms for schools, and when written, it is equally puzzling to know how to apply them with advantage. We shall be glad to see a second part to the Geography containing some amusing facts, hints, or anecdotes, for teachers to illustrate the dry details of places, rivers, and mountains in the first part.

A TEXT BOOK OF ZOOLOGY FOR SCHOOLS, BY PHILIP HENRY GOSSE, A.L.G. (London: *Printed for the Society for promoting Christian Knowledge.*)

We are always grateful for any information we may receive on the physical world. A knowledge of the animal creation, of the nature, form, and utility of the countless variety of living creatures which people our globe, with which we live, and upon which we depend for many of the pleasures and enjoyments of life, ought surely to form an essential feature in every system of education. We hope in this age of inquiry that due attention will be devoted to this subject by every pedagogue, that the young may be better acquainted with those mysterious creatures which they meet in their daily walks, that they may learn the value of them, and know how to use and not abuse them. In the Text-Book of Zoology, Mr. Gosse has presented us with a neat, handy and interesting volume, illustrated with various engravings. The language, upon the whole, is easy, elegant, and intelligible.

There are a few names and scientific terms which we could wish a little simplified or explained to adapt the book to more general use. It is, however, a pleasant addition to our school series, and as the writer is evidently acquainted with, and interested in the subject, we hope to have the benefit of his future inquiries into the peculiar habits, social relations and obligations of the animal world. By this means he will not only add honour to himself, but will materially promote the cause of education and religion.

LE DICTIONNAIRE DES VERBES ENTIEREMENT CONJUGUES, BY M. A. THIBAUDIN. (London: *Simpkin, Marshall & Co.*)

An elaborate volume, containing all the French verbs, regular and irregular, alphabetically arranged and completely conjugated in all their moods, tenses, numbers, persons, &c.

The conjugations are very clearly arranged in tables, and the principle is easily understood. It is too expensive for a class book, but will be very useful to a teacher, and will frequently settle a doubtful point.

A NEW GREEK DELECTUS, ADAPTED TO THE ARRANGEMENT OF THE REV. C. WORDSWORTH'S GRAMMAR, WITH A LEXICON AND APPENDIX. BY THE REV. H. C. ADAMS, M.A., ASSISTANT-MASTER OF WINCHESTER COLLEGE. (London : *David Nutt.*)

Mr. Adams objects to the Delectuses now in use that they are not

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Besides,
even w ANTI-LOGARITHMS, AND AN IMPROVED TABLE OF
serio ARITHMS; WITH AN APPENDIX, CONTAINING A TABLE
rem FOR THREE JOINT-LIVES. BY HERSCHELL E. FILI-
ou (London: *George Bell.*)

Prefixed to these Tables is a short account of Logarithms in general, *and of Anti*-Logarithms in particular, together with several examples in *illustration* of the method of using the anti-logarithmic table, as well *as Gauss's* logarithms for finding the logarithm of the sum or difference *of two* quantities whose logarithms are given. In the Introduction the *author* remarks, "that the finding of seven places in numbers is more *requisite* than the finding of seven places in logarithms must be indis*putable* to all, since the former expresses the required value in nature, *whilst* the latter merely expresses its character, by which the working *of the* computer is facilitated. For in all logarithmic calculations, the ultimate results must finally be reconverted into natural numbers, with which the computer originally started. It is therefore manifest, that the easier two extra places of numbers be obtained, the more valuable becomes the working by logarithms."

The use of the table of anti-logarithms is to determine with facility and accuracy the number to seven places of figures corresponding to a logarithm, resulting from some operation with such numbers. If the usual tables, such as Dr. Hutton's, are made use of, the number corresponding to a given logarithm is readily obtained by inspection to five figures, and to obtain a sixth figure, the difference between the given logarithm and the next less one in the table must be found, and opposite to this difference, in a subsidiary table of differences, the sixth figure is found. A repetition of this process in the subsidiary table alone will give a seventh figure, which will generally be correct to the nearest unit; and thus, by means of an auxiliary table of differences,

umber may be obtained to seven places of figures from the ordi-
bles with comparative facility. But though the common tables
thms will furnish the number corresponding to any given loga-
x or seven places of figures, still the utility of a separate
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wski's table of anti-logarithms will be found to supply
ecting this reconversion with greater facility than by
ss when the ordinary logarithmic tables are employed.
le will be found exceedingly useful to land sur-
rs who are necessarily engaged in the computation of
t large triangular-surfaces, and indeed to all who have
computations to perform. To obtain results to seven places
es is desirable in many delicate calculations, and every attempt
acilitate the determination of such accurate values cannot be too
highly appreciated. The table is a valuable addition to our stock of mathematical tables, since, by means of it, very little additional labour is required to obtain the two extra figures which are not inserted in the ordinary tables. As an example, let it be required to find the natural number corresponding to the logarithm 2·6184032. Leaving the characteristic, 2, out of consideration, the number corresponding to 61840, the first five figures of the mantissa, is 4153364; then in the proper column of differences, opposite to 32 (the remaining figures of the mantissa) stands 31, which added to the last two figures of the number 4153364 gives 4153395. The characteristic, 2, determines the number of integer figures, and the required number is therefore 415·3395. By a reverse process the table may be used for finding the logarithms of numbers.

By means of Gauss's table the working of various calculations in trigonometry and astronomy is greatly abridged and facilitated, especially in equations, which have the sign of *addition* or *subtraction* combined with those of multiplication and division. It may also be successfully applied in calculating annuities, for "instead of converting the logarithm of a certain annuity into a number, and then adding 1 to the results before another annuity can be obtained, we simply enter this differential table, where, by mere inspection, the logarithm of the required annuity is readily found." We shall give an example of the use of this table.

Given log. a=·51708, and log.b=·31262 to find log.$(a+b)$ and log.$(a-b)$.

The *difference* of these logarithms is ·20446, and opposite to ·204 we get ·41490; then in the proper column of differences opposite to the two remaining figures, 46, we find 28, which is to be added to ·41490, and the sum, ·41518, added to the *less* logarithm, ·31262, gives ·72780 for the logarithm of $a+b$.

To find the logarithm of $a-b$, enter the table *inversely* with the same difference ·20446, and its corresponding value is readily found to be 9·77906, which added to log. b=·31262, gives (omitting 10 in the place of integers) ·09168, which is the logarithm of $a-b$.

By means of this table, the logarithm of the hypothenuse of a right-angled triangle may be determined from knowing only the logarithms of the two sides containing the right angle.

In the Appendix, the author gives a table of Annuities for three joint lives, of all combinations of quinquennial ages, from age 5 to age 100. This is also a valuable table and one very much wanted. It is exclusively confined to annuities for combinations of quinquennial ages, but it may be employed in order to find the annuities for combinations of intermediate ages, which is effected by a method of interpolation given in the introduction to this table and illustrated by some examples.

We have carefully examined these several Tables, and considering the extent to which the Anti-Logarithmic Table is carried—its convenient arrangement and beautiful typography,—it far surpasses any similar table which has come under our observation, and we have no hesitation in recommending it as a great acquisition to those whose researches involve much logarithmic calculation. The other short but useful tables are also deserving of commendation, and we have the satisfaction of knowing that the opinion we have expressed of Mr. Filipowski's Tables is in accordance with that of Professor De Morgan in his testimonial prefixed to the volume.

THE PROCESS OF THOUGHT ADAPTED TO WORDS AND LANGUAGE. BY ALFRED SMEE, F.R.S. (London: *Longman and Co.*)

THIS volume constitutes a further contribution to the electro-biological series of works which the learned author has already published. The term Electro-biology literally signifies neither more nor less than the relation of electricity to the vital functions; and the volume before us being a practical application of the subject, may possibly be immediately useful. The process of thought, and the artificial system of reasoning detailed in the work will be found of service, especially as by the right application of what the author calls the *relational system*, no form of sophistry or quibble can be successfully employed.

GENERAL EXAMINATION OF CANDIDATES FOR CERTICATES OF MERIT.

EASTER, 1851.

SCHOOL MANAGEMENT.

Three Hours allowed for each Paper.

SECTION. I.—1. State at length what you understand by the term "School-management."

SECTION II.—1. In a school of 150 boys, say exactly how you would arrange five classes—*a* For a reading-lesson; *b* For writing; *c* For arithmetic; to be going on at the same time.

2. Show the use and abuse of the Black Board.

3. Name the different methods in which writing is taught in our Elementary Schools. State which you believe to be the best, and give your reasons.

SECTION III.—1. Define carefully "Notes of a lesson," state how you prepare them, and show on paper their mechanical arrangement.

2. Show, by simple instances, the difference between giving a lesson to a class ignorant of the subject, and examining the same class when in some degree informed on it.

3. In what way, and to what extent, do you instruct your apprentices in the art of teaching? Describe this carefully.

SECTION IV.—Write notes of a lesson on one of the following subjects: —Filial affection—Self-denial—Falsehood—Loyalty—Wheat—Soap—Sugar —Cotton—King Alfred—Christopher Columbus—William Shakspeare—Charles I.

SECTION V.—1. Describe at length your method of giving and correcting an exercise in "dictation."

2. State how you deal with children of the following description respectively—ignorant, inattentive, rude, deceitful, unpunctual, irregular in attendance.

3. State fully and accurately the part which you take in the work of your School.

MUSIC.

SECTION I.—1. In a school of 110 children, with three pupil teachers, in their fourth year, how would you teach vocal music?

SECTION II.—1. Explain fully the terms Dal Segno, Da Capo, Mezzo Staccato, Fine, Legato, Sforzato, Andantino con moto, Allegretto con brio. Tutti.

2. Explain Alla Breve Time, Duple Time; and state how many beats could be made to a bar of $\frac{6}{8}$ and to a bar of $\frac{3}{4}$ Time. Write a short passage of music, to show the most convenient form for a bar of $\frac{6}{8}$ Time.

3. Are there any modulations more common than others? If there are, name them. What is a modulation?

SECTION III.—How is it known whether a piece of music is written in the major scale indicated by its signature, or in its relative minor?

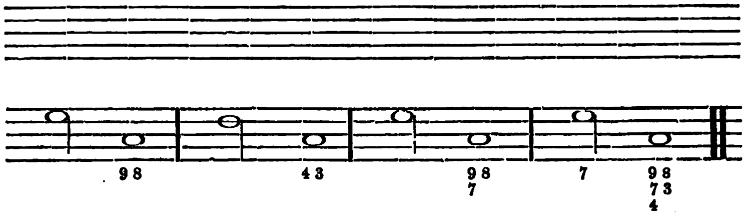
2. In every major scale what notes invariably bear major thirds?

3. What is a canon? What is a Round? How are they performed?

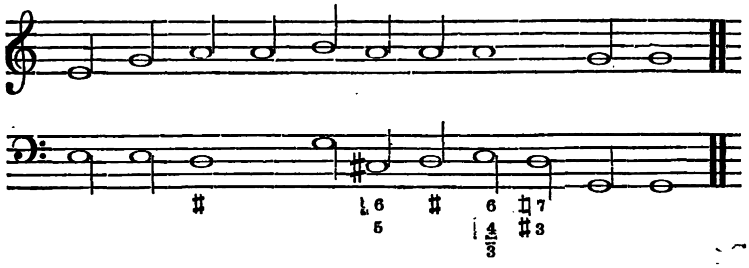
SECTION IV.—1. How many chords are derived from the common chord?

2. What is meant by contrary motion, similar motion, oblique motion?

3. Write the chords indicated by the figuring in the following passage?



SECTION V.—Write four parts to the following passage:—



MECHANICS.

SECTION I.—1. Explain the method of estimating work done.

Find the work performed by a horse which draws a ton of coal up a hill, one mile long, and rising regularly at the rate of 7 feet in every 100 yards, supposing friction to be equal to $\frac{1}{8}$th of the weight of the load.

In the Appendix, the author gives a table o
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composition and resolu- [illegible] be proportional and parallel [illegible] (a) sides, their resultant will be

[illegible] with its foot upon a horizontal plane, the co-efficient of friction on the vertical [illegible] horizontal plane ·7; the centre of gravity of the [illegible] determine the greatest inclination to the ver-

[illegible] the proposition that action and reaction are [illegible] each other.

[illegible] Two spherical balls of equal size, but weighing respectively 20 and 30 [illegible] move directly towards each other with the respective velocities of 75 and 17 feet, in a second; determine their movements after collision, supposing the force of elasticity to be ½ the force of impact.

2. A body is moved from rest by the force of gravity; find the velocity acquired, and the space described in a given time.

From the top of a tower, 170 feet high, a shot is fired with a vertical velocity of 1000 feet in a second; find the height to which it would rise, and the velocity with which it would fall to the ground, if the air offered no resistance to its passage.

3. Describe the construction and action of the hydraulic ram. If the modulus of one of these machines be ·87, the water spent 18 gallons per minute, the fall of the water 14 feet; to what height will it raise a cubic foot of water in 80 seconds.

EUCLID.

SECTION I.—1. If two angles of a triangle be equal to each other, the sides also which subtend the equal angles shall be equal to each other.

2. If a straight line fall upon two parallel straight lines, it makes the alternate angles equal to each other: and the exterior angle equal to the interior and opposite upon the same side: and likewise the two interior angles upon the same side together equal to two right angles.

3. To describe a parallelogram equal to a given rectilineal figure, and having an angle equal to a given rectilineal angle.

SECTION II.—1. If a straight line be divided into two equal parts, and also into two unequal parts: the rectangle contained by the unequal parts, together with the square of the line between the points of section, is equal to the square of half the line.

2. To describe a square that shall be equal to a given rectilineal figure.

3. The opposite angles of any quadrilateral figure inscribed in a circle are together equal to two right angles.

SECTION III.—1. In a circle the angle in a semicircle is a right angle.

2. If two straight lines cut one another within a circle, the rectangle contained by the segments of one of them is equal to the rectangle contained by the segments of the other.

3. To describe a square about a given circle.

SECTION IV.—1. Triangles and parallelograms of the same altitude are to each other as their bases.

2. In a right-angled triangle, if a perpendicular be drawn from the right angle to the base, the triangles on each side of it are similar to the whole triangle, and to each other.

3. If two opposite sides of a parallelogram be bisected, and two lines be drawn from the points of bisection to the opposite angles, these two lines trisect the diagonal.

SECTION V.—1. Describe an isosceles triangle, each of the sides of which shall be double of the base.

2. Show that in a parallelogram the sum of the squares of the diagonals is equal to the sum of the squares of all the sides.

3. The arcs intercepted between any two parallel chords in a circle are equal.

HIGHER MATHEMATICS.

SECTION I.—1. The sum of an arithmetic series is 440, the first term 3, and the common difference 2. What is the number of terms?

2. Prove the rule for the number of permutations of n different things taken all together. In how many different ways may the letters forming the word Buckingham be arranged?

3. Prove that if the sum of the digits of any number be divisible by 3, the number itself is divisible by 3.

SECTION II.—1. Investigate a rule for finding the present value of £a, due n years hence, r being the rate of interest.

2. A person is entitled to an annuity of £100, commencing three years hence, and continuing for three years. He wishes to exchange it for an annuity to commence immediately, and terminate at the same time with the other annuity. The rate of interest being 5 per cent.; to what amount of annuity is he entitled?

3. What is a *logarithm?* Find a logarithmic expression for the value of x in the equation

$$\frac{a b^x + c}{d} = e.$$

SECTION III.—1. Define the *secant* of an angle, and find its value in terms of the sine.

$$2.\ \tan. A + \cot. A = \frac{4}{\sqrt{3}}$$

Find the values of *sin.* A. and *cos.* A.

3. Given an angle (A) of a triangle, and the sides (b, c) containing it, investigate formulæ for the values of the opposite side (a), and the remaining angles (B, C).

SECTION IV.—1. Prove that the sides of a triangle are proportional to the sines of the opposite angles.

2. Find the value of *sin.* 18°.

3. The elevation of a tower is observed from a certain distance. At a station a feet nearer, the elevation is the complement of the former; b feet nearer still, it is double the first elevation. What is the height of the tower?

SECTION V.—1. Explain what you mean by a *system of coordinates*, and by *the equation to a line*, and find the equation to a straight line which cuts the axis of x at a distance from the origin $= a$, and the axis of y at a distance $= b$, the system of coordinates being rectangular.

2. What do you mean by a *conic section?* Find the equation to the ellipse, the extremity of the axis major being the origin of coordinates, and the axis major being on the axis of x: and from it deduce the equation when the origin is at the centre of the ellipse.

3. What do you mean by *maxima* and *minima* of a function of a variable. Investigate a rule for their discovery, and find the largest possible area of a right-angled triangle, the hypothenuse of which $= c$.

LIST OF MASTERS WHO HAVE RECEIVED CERTIFICATES.

The Committee of Council on Education have awarded Certificates of Merit, after Examination before Her Majesty's Inspectors, at Easter, 1851, to the following Masters in National and other Schools in connection with the Church of England, and Students in the Exeter Training School:—

FIRST CLASS.

Third Division.

James Alder	Worsley N. S., near Manchester.
Joseph Draper	Rochester, St. Nicholas N. S.

SECOND CLASS.

First Division.

Thomas Herrvel Bott	Brighton, St. John's N. S.

Second Division.

Abraham Boardman	Liverpool, St. Paul's Prince's Park N. S.
Edward Wynne	Oswestry N. S.

Third Division.

Thomas Beer	Student—Exeter Training School.
Alfred Bingham	Fulham, All Saints N. S.
James Dear	Abbotts Ann N. S.
John Jones	Halifax, Kingcross St. Paul's N. S.
Henry Page	Newcastle-on-Tyne, St. Thomas N. S.
Francis Woods	Hyde, St. Bartholomew's N. S.

THIRD CLASS.

First Division.

Thomas Brown	Kirkwhelpington N. S.
George Burden	Alderbury, Parochial S.
Henry Dart	Torquay N. S.
George Jesson Davis	Cainscross N. S.
Joseph Forster	Newcastle-on-Tyne, St. John's N. S.
John Hargreaves	Cuxton N. S., near Rochester.
Robert Lidgate	Southwark, St. Mary's N. S.
John Pereira	Westminster, St. James' N. S.

Second Division.

Arthur Clarke	Wimborne N. S.
George Jones	Brighton, Warwick St. S.
Alfred Kent	Waltham N. S., near Melton Mowbray
George Lee	Barnwell N. S.
Charles Larkin Mills	West Malling N. S.
William Mitchell	Swansea Upper, N. S.
Isaac Moulton	Westbury N. S.
James Pleace	Student—Exeter Training School.
Henry Terry	Westbourne N. S.
James Tomlison	Chorley N. S.

THIRD DIVISION.

John Austin	Axminster N. S.
William Branter	Ingrow N. S.
Richard Cooper	Skirbeck N. S.
Peter Neville Dewhurst	Burnley, St. James' N. S.
James Eldridge	Aldeburgh, N. S.
John Ellis	Market Weighton N. S.
Henry William Humphreys	Bradford Ch. Ch. N. S.
John Loam	Tavistock Ch. of E. S.
James Macfarland	Oakham N. S.
William Moss	Manchester, All Souls N. S.
George William Oliff	Grantham N. S.
John Oliver	Brampton Brian N. S. (Salop.)
William Pearson	Leeds, St. Peter's Ch. of E. S.
Henry Pinder	London, St. Sepulchre's Parochial.
Edward Poore	Cranley N. S.
Henry Smith	Seiston N. S., near Saxmundham.
John Sterndall	Wellow, Romsey Ch. of E. S.

Number of Candidates . . . 180

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 99.—*Proposed by J. H.*

A SPHERICAL balloon, 30 feet in diameter, constructed of silk, weighing 2 ounces 9 drams per square yard, is filled with hydrogen gas, the specific gravity of which is to that of atmospheric air as ·069 to 1, a cubic foot of atmospheric air weighing $1\frac{1}{4}$ ounce: what weight will just balance the balloon to prevent it from rising in the atmosphere?

Answered by Mr. Rowlatt, Mr. Hill, Mr. Salter, Mr. Royds, and Mr. Righton.

Area silk $= 30^2 \times 3{\cdot}1416$ sq. ft. $= 314{\cdot}16$ sq. yds.
Weight silk $= 2\frac{9}{16} \times 314{\cdot}16 = 805{\cdot}035$ oz.
Capacity balloon $= 30^3 \times {\cdot}5236$ c. ft. $= 14137{\cdot}2$ c. ft.
Weight 1 c. ft. hydrogen $= 1\frac{1}{4} \times {\cdot}069 = {\cdot}08625$ oz.
Weight hydrogen $= {\cdot}08625 \times 14137{\cdot}2 = 1219{\cdot}3335$ oz.
Weight whole balloon $= 805{\cdot}035 + 1219{\cdot}3335 = 2024{\cdot}3685$ oz.
Weight equal bulk of air $= \frac{5}{4} \times 14137{\cdot}2 = 17671{\cdot}5$ oz.
$\therefore$ Weight required $= 17671{\cdot}5 - 2024{\cdot}3685$
$= 15647{\cdot}1315$ oz. $= 8$ cwt. 2 qr. 25 lb. $15{\cdot}1315$ oz.

QUES. 100.—*Proposed by Mr. E. Whittle.*

The expense of paving a court-yard with Dutch clinkers, at 5*s*. per hundred, was 40*l*.; required the dimensions of the court-yard, allowing 144 clinkers to a square yard, and that the length of the court-yard exceeds its breadth by 15 feet.

Answered by Mr. J. Bolton, Mr. Hill, and Mr. Bolton.

Let $x =$ the breadth of the court-yard,
$\therefore x + 15 =$ its length, and
area $= x\,(x + 15)$.

$$\text{No. clinkers} = \frac{40 \times 20}{5} \times 100 = 16000;$$

$$\therefore \text{area} = \frac{16000}{144} \times 9 = 1000 \text{ sq. ft.};$$

$\therefore x(x + 15) = 1000;$
$\therefore x = 25$ ft., the breadth,
and the length $= 25 + 15 = 40$ feet.

Ques. 101.—*Proposed by Nemo.*

Given the base (b) of an isosceles triangle, to find its perpendicular height, when the area of the inscribed circle has a given ratio (p) to the area of the whole triangle.

Answered by Mr. J. Sheppard, Mr. Morris, A. M., Gillingham, and Emma Royds.

the radius of the circle $= r$; the height of the triangle $= v\,r$; and half the
Let $\frac{b}{2} = c$; then each of the equal sides $= \sqrt{v^2 r^2 + c^2}$;

area triangle $= \frac{1}{2}$ base × height $= c\,v\,r$ . . . (1)

" $=$ semiperimeter × radius $= r\,(\sqrt{v^2 r^2 + c^2} + c)$ . . . (2)

" $= \frac{r^2 \pi}{p}$ . . . (3)

From (2) and (3),

$$\sqrt{v^2 r^2 + c^2} + c = \frac{r \pi}{p},$$

$$\therefore r = \frac{2 p c \pi}{\pi^2 - p^2 v^2};$$

but from (1) and (3),

$$r = \frac{p c v}{\pi};$$

$$\therefore \frac{2 \pi}{\pi^2 - p^2 v^2} = \frac{v}{\pi},$$

$$\therefore v^3 - \left(\frac{\pi}{p}\right)^2 v = -2\left(\frac{\pi}{p}\right)^2;$$

from this cubic equation v may be found; and then by substitution r may be determined from the equation $r = \frac{p c v}{\pi}$.

LIST OF MATHEMATICAL ANSWERS.

A. M. Gillingham, ans. 99, 100, 101; J. Sheppard, ans. 99, 100, 101; J. Royds, Belfield, ans. 99, 100, 101; J. Rowlatt, Evercruch, ans. 99, 100; H. Hill, Mortlake, ans. 99, 100; J. Herbert, Woolton, ans. 99, 100, 101; J. Salter, Durham, ans. 99, 100; W. Brown, Ightham, ans. 100; F. Dungate, Ightham, ans. 99; G. Scott, Low Moor, ans. 99, 100; J. Webb, ans. 100; J. Fox, Burton-on-Trent, ans. 100; J. Reid, Brendon, Cornwall, ans. 99, 100; T. Horsman, Chelsea, ans. 100; D. O'Sullivan, Preston, ans. 99, 100, 101; W. Righton, jun., ans. 99, 100, 101; W. Davis, Coniston Cold, ans. 99, 100; J. B. Bayley, 99, 100; G. Morris, Gosport, ans. 99, 100, 101; C. Smith, ans. 100; J. Bolton, Old Malton, ans. 99, 100; Sam. Dyer, ans. 99, 100; C. H. Kennion, Tamworth, ans. 100; E. Carthew, Roehampton, ans. 99, 100.

NEW QUESTIONS,

To be answered in our Number for August, 1851.

Ques. 102.—*Proposed by Mr. Abbott, Twickenham.*

If 3lbs. of tea be worth 7lbs. of coffee, and 12lbs. of coffee worth 30lbs. of sugar, what quantity of sugar may be had for a chest of tea weighing 50lbs.?

Ques. 103.—*Proposed by H. M. I.*

If the modulus of a hydraulic ram be ·87, the water spent 18 gallons per minute, the fall of the water 14 feet; to what height will it raise a cubic foot of water in 80 seconds?

Ques. 104.—*Proposed by Tom Tomkins.*

Required an expression for the side of an equilateral triangle inscribed in a given parabola?

Intelligence.

National Society.—The annual meeting of this Society was held on the 4th June, at the offices of the Society at Westminster, and was most numerously attended. Notices of motion having been given, which seemed likely to lead to considerable discussion, and to interrupt the harmony with which the proceedings have been usually conducted, the following statement was officially published through the *Times* the day before the meeting: "The committee of the National Society, to whom the management of its affairs is by the charter exclusively intrusted, earnestly deprecate the discussion which they have reason to expect at the general meeting of the society on Wednesday next. They consider each and all of the propositions of which individual members of the society have given notice alike unnecessary, and they deem the public discussion of them at the annual meeting calculated to embarrass the operations and to impair the efficiency of the society. They believe that there is in the public mind some misconception as to the position of the society in respect of its relations to the Committee of Privy Council on Education, and they had intended that a resolution should have been proposed to the general meeting, declaratory of the views of the committee on this subject. But the committee, fearing that by that course they might appear to encourage such discussion, have on consideration resolved not to adopt this course. It seems to them necessary to announce this change of intention, and at the same time to declare that the committee consider it of the utmost importance to preserve harmonious co-operation between the National Society and the Committee of Council on Education; and while they regret the continued adherence of the Committee of Council to the resolution of excluding from all share of the Parliamentary grant for building school houses those Church schools the promoters of which decline to constitute their trust deeds on the model prescribed by their Lordships, thereby interfering with that principle of local freedom on which the society has ever voted its grants according to its charter, they rejoice that the difference which exists on that subject, and which they still hope may be removed, has caused no interruption to the friendly relations between the Society and the Committee of Council on Education."—The chair was taken by the Archbishop of Canterbury. After the report had been read by the secretary, the following resolution was proposed by the Rev. G. A. Denison, and seconded by A. J. B. Hope, Esq., and supported by the Rev. S. Sugden and Mr. Gipps, Mr. Hubbard, and the Rev. M. W. Mayow:—"That this meeting deeply regrets that Her Majesty's Government continue to disallow the equitable claim of members of the Church of England, as set forth in the resolution of the annual meeting of this society, June 6, 1849, that founders of Church schools who see fit to place the management of their schools in the clergyman of the parish and the bishop of the diocese should not on that account be excluded from State assistance towards the building of their schools. And that this meeting desires to express its sense of the very great importance of securing the most friendly relations and the most harmonious co-operation with the civil power, and of being enabled to accept assistance of every kind from the Parliamentary Grant for education; provided always that such co-operation and such assistance involve no interference, direct or indirect, actual or virtual, with the doctrine or discipline of the Church."—In opposition to Mr. Denison, the following resolution was proposed by Sir J. Pakington, seconded by — Childers, Esq., M. P., and supported by the Rev. S. Robins, and the Rev. R. Burgess, "That the cause of sound religious instruction, and the interests of the Church, demand, at the present juncture, the friendly co-operation of the National Society and the Committee of Council; and this meeting, satisfied that such co-operation must be for the advantage of the National Society as well as of the Church at large, desires to express its earnest hope that the two bodies may act cordially together."—Much discussion having ensued, the Bishop of London entreated the meeting to put an end to it by rejecting both resolutions; Sir J. Pakington thereupon withdrew his, and the meeting was divided upon Mr. Denison's. A large number of hands was held up for Mr. Denison's, but the chairman stated that a much larger number were held up against it.—The Rev. C. B. Dalton was elected on the committee, in place of the Rev. H. H. Norris, deceased.—The proceedings terminated at half-past five.

To Correspondents.

A. M.—The etymological points alluded to in your letter are not important enough for separate publication: they may be gathered from the ordinary Dictionaries of Derivations.

C. S. asks us for a model of a school report; perhaps some of our correspondents will oblige us with one.

ON LATIN ETYMOLOGY.

No. XII.

In our last paper, when considering the derivatives from the several obsolete verbs, *cen-* "to prick," *sen-* "to feel," *men-* "to mind," *gen-* "to produce," it would have been to the purpose if we had also noticed those which flow from an obsolete verb *men-* "to measure." Such derivatives are the participle *menso-* (nom. *mensus*, more familiar in the compound *emensus*, &c.), *men-sor*, *men-sura-*, *men-sion-;* also the sub. *mēta-*, i. e. *men-ta-*, the conical stone for measuring the distance in a race-course; the verb *mēta* (inf. *mētari*), which is either a frequentative from the simple verb. *men-*, or rather directly formed from the sub. *meta*, just noticed, but used in the sense of a surveyor's land-mark. On the other hand, the verb *mēti-ri*, to which *mensus* is commonly but incorrectly referred as its participle, implies an intermediate sub. *mēti-s*, i. e. *men-ti-s* "measuring," thus agreeing precisely with the formation we ascribed to *senti-re*. We now turn to another subject.

It will be recollected that at the close of the preceding paper, we spoke of derivatives from *gen-* (or *gign-o* i. e. *gi-gen-o*) "produce," or "make to grow," in which the liquid *n* has been supplanted by the liquid *r*, as *germen* and *germanus*. Our own *grow* is probably of the same origin, and presents in the letters *ow* a suffix, already more than once spoken of in *know*, *bellow*, *sparrow*, *hollow*, &c. The interchange of the two liquids *n* and *r*, especially at the end of a root or word, is not unfrequent, and the consideration of this question may remove not a few obscurities in the field of etymology; and that not only in the classical, but, as might be expected, in other languages also. Thus the French deduce their words *ordre*, *pampre*, *diacre*, from the Latin *ordon-*, *pampino-*, *diacono-* (nom. *ordo*, *pampinus*, *diaconus*). The Spaniards, again, pronounce *nombre*, *lumbre*, *hombre*, *hembra*, *muchedumbre*, where the Romans have *nomen-*, *lumen-*, *homon-*, *femina-*, *multitudon-*.

One of the most interesting examples of the change, is in the appearance of the two Latin verbs, *sero* and *sino*, beside each other. The preference of a vowel ĕ before the *r*, and of an ĭ before the *n*, was to be expected in the Latin language, as in *patera*, *numerus*, *opus operis*, on the one hand, and *patina*, *asinus*, *ordo ordinis*, on the other. Thus the substantial difference between *sino* and *sero* lies in the liquids alone. The two words again are at bottom, of precisely the same meaning, viz., "to put." Such meaning is visible in the participle *sito-* (nom. *situs*), "situated," and, also, in the substantive *situ-* (n. *situs*) "situation, site." The compound *desin-* would thus signify "put down," and from this idea readily flows that of "abandoning, leaving off." In fact, we cannot do better than compare *desinere* with *deser-ere*, as the latter verb acquires its notion of "desertion" precisely in the same way from the earlier notion of "putting down." Even the sense of "to let, or permit," as existing in the verb *sino*, is deducible from the idea of "putting, or causing to be in a particular place." Nay more to "let a house," means "to place the use of a house in a person's hands," an assertion which is confirmed by the fact, that the Latin *locare,* meaning originally only " to place," came eventually to be used in the same sense of " letting a house," &c., *locare aedes;* and from the Latin so used comes the French *louer* " to let." On the other hand as regards the verb *sero,* we can be at no loss in searching for examples of the sense of "putting," when we have before us, *exserere bracchium,* "to put the arm out of the toga," *inserere* " to insert," *conserere manum* " to join battle," *praesertim,* " put foremost," to say nothing of the verb already mentioned, *deserere* " to put down, and so abandon." As the most important " putting " is that of putting seeds or plants in the ground, it is no way wonderful that the verb *serere,* in the sense of " to sow, or to plant," should occupy a very prominent place; but we are not justified by this prominence in regarding the idea of " sowing or planting.,' as the primitive sense. Again as in all putting the idea of order is recommended at once by the advantage of economizing space and by the love of beauty, we see how the substantive *series* acquires the sense of a row or succession; nor even here is it necessary, though it may be convenient, to draw into our explanation the idea of " sowing seeds, or planting vegetables in a line." Of course, it is not forgotten, that many of the derived forms from our root are limited to the idea of sowing, or planting, as *sevi, satus,* and *semen.* Such limitation of special forms to special meanings is common in language. Thus the words *draught* and *draft,* though identical in sound, and having a common origin from the verb *draw,* must not be used indifferently in writing. A doctor's *draught,* and a *draught* of air, require a guttural *gh,* whereas a *draft* on a banker is commonly spelt with an *f.* Again, a *suit* of clothes rejects the final *e,* which is deemed essential when we speak of a *suite* of apartments, or the *suite* of an ambassador; yet in all these cases we have the French noun *suite,* formed from the Latin *secta.* Distinctions of this kind are not founded on any principle; and use alone enables us to say that the simple participle *situs* must not be applied to " sowing, or planting," while the compound participles *consitus, insitus, obsitus,* always imply a reference to such ideas, directly or indirectly.

The use of *asserere* " to assert," seems at first sight to have no connection with that idea which we hold to be original in the simple verb *serere.* This is one of the cases where legal phraseology has become naturalized in the language of common life; and we may perhaps venture to say that no language has been affected in this way to the same extent as the Latin, a fact which is perhaps well accounted for by another fact, that education to the legal profession was almost as universal among Roman citizens, as education to the profession of arms. Now, *asserere manu servum,* &c., is a phrase that was in use to signify " the assertion of property in a slave," &c. Probably, an earlier form of the phrase, was *asserere manum servo* (dat.), "to place one's hand upon a slave. "Such a supposition is in agreement with the fact, that *circumdare murum urbi,* " to place a wall round a city ;" and *inserere surculum arbori,* "to graft a shoot upon a tree," are older phrases than *circumdare urbem muro,* " surround a city with a wall" (abl.), *inserere arbutum nuce,* "ingraft an arbute with a nut-tree." In our translation of the phrase *asserere manu servum*, we have the authority of Forcellini, and Mr. Long, in "Smith's Antiquities," and we believe of every writer on Roman law; but Mr. Riddle, under *assero*, translates the phrase, *a. aliquem manu*, "to claim a person by taking hold of his hand;" and a few lines below he again translates *a. in servitutem*: "to claim by the ceremony of laying hold of his hand . . . a runaway slave . . . ." Are we right in attributing this error to a mistranslation of Lünemann's phrase: *sich Jemanden durch Anlegung der Hand als sein Eigenthum anmassen?*

The connection which we have thus claimed for the two verbs *sinere* and *serere*, suggests the question whether the two names, *Seres* and *Sinae*, applied by the ancients to nations in the extreme east, are not simply varieties of the same word. It is no serious objection to this view that the professed geographers affected to assign them a somewhat different locality; and such a discrepancy of sound is to be expected where a word is conveyed thousands of miles through people whose organs of speech and hearing must seriously differ. Thus the French and English missionaries have spelt the Chinese word which happens to denote both *two* and *thou*, the former by the European letters *eul*, the latter by *irr*. However, in the present instance it should not be left out of view, that the long vowels in *Sēres* and *Sīnae*, are far less liable to interchange in such positions than the short vowels of *sĭnere* and *sĕrere*.

That the French should have substituted *ordre* for the Latin *ordine*, is the less surprising when we find the Romans themselves alternating the liquids in the declension of *femur*, gen. *feminis*, or *femoris*, the oblique cases preferring the *n*, for it seems that Ovid and Tibullus alone have such forms as *femoris*, *femori*. But this reminds us of a strange passage in Messrs. Riddle and Arnold's "Copious and Critical English-Latin Lexicon." In the ninth page of the part which is from the pen of Mr. Riddle,* we find:—

"LEG, crus (*from the knee to the ankle, the shin*, κνήμη; *of which the larger bone is called* tibia, *the smaller* sura; *see Cels.* viii. 1;—femur, femen, *from the hip to the knee, the thigh bones; the former the outer one, the latter the inner one*), &c.

Here again, Mr. Riddle's error seems due, in the first place, to a hasty translation of the German, or he would have seen that in Dr. K. E. Georges' "German-Latin Dictionary," (sub voce *bein*) das innere meant merely the inner part of the thigh,† and not the inner bone. But apart from all questions of German and Latin, a glimpse at any skeleton will serve to correct the error of assigning to the thigh a pair of bones.

An interchange between *n* and *r* often tends to hide the connection between Greek and Latin words. The ordinary relation between these two languages consists in the Greek presenting a ν where the Latin has an *r*, or if we look to the older Latin language, an *s*. But where this original *s* is not final, it commonly passed into an *r*. Thus the first person plural of a verb in the ordinary Greek dialect ends in μεν

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* It is to be regretted that Mr. Arnold did not pursue his original design of publishing an English-Latin Lexicon of his own, instead of entering into a coalition.

† Yet even this distinction seems without foundation.

(τυπτομεν); but the Romans agreed more nearly with the Doric suffix μες (τυπτομες), and wrote *mus* (*regimus*). So again to the Greek adverbs in θεν, ουρανοθεν, &c., correspond Latin adverbs in *tus*, *caelitus*, &c. Again, one form of the Greek comparative had for its suffix ιον, βελτιον- (nom. βελτιων), whereas the Latin preferred *iōs*, as in the old oblique forms *mel-ios-em*, &c.; and, although this in the later tongue was modified into *melior-em*, the *s* was still preserved in the neuter *melius*, and the diminutival *meliusculus*.

Merus is a word which Lünemann passes by without an attempt at etymological remark. He did not see that it is the equivalent of the Greek μονος. The short *e* of the Latin is the genuine vowel of the root, for the Greek adjective itself is but a secondary form from μεν-, of the partly obsolete μεις μια μεν. Here, again, it may be expedient to state that we would not regard *merus* as a foreign importation. The old Latin wrote the numeral *unus* in the form *oenus*, of which a sound like *wen-* is the root, corresponding to the μεν-, or Fεν- of the Greek.

The relation between μονος and *merus* has its parallel in that between the substantives *mora*, and μονη, which were recently considered.

The Greek substantives ις and ινιον "a sinew" have for their base a monosyllabic Fιν-, to which correspond the Latin *vis* and *vires*. The form *vis* it is well known is always long, and it has a double claim to this pronunciation, first in the nature of its vowel, and secondly in its being abbreviated from a fuller form with a nominatival *s*, *viss*. In the plural the *s* of the base as usual becomes an *r*.

In the forms *femen* and *femur* we saw the Latin within its own limits, treating the liquids *n* and *r* as convertible. Another case is found in a comparison of *murus* and *munire*, &c. These words with others related to them deserve a fuller consideration. A long *u* in a Latin root-syllable always suggests the question whether there are not related forms with a diphthong *oe* or *oi*. We have already had an example of this in the words *unus* and *oenus*; others are *poena* and *punire*, *Poeni* and *Punicus*, *cura* and the archaic *coera*, *utor* and the archaic *oetor*, *uro* and *oestrum*. Similarly in the root proposed for examination, we have the Virgilian form *moerorum*, the compound *pomoerium*, *moenia* sub. n. pl. by the side of *munia*, *communis* and *comoinis* or *comoenis*, *immunis* and *inmoenis*, &c. Since then there can be no doubt as to the ready interchange of the vowel sounds, the sole remaining difficulty as to form lies in the substitution of an *n* for an *r* or vice versa, which will no longer be regarded as a serious obstacle. The meanings however of the words we have quoted cover a wide extent of surface, and seem at first irreconcilable. If however we start from a base signifying "to divide" we shall see that *munia* may well be a subst. pl. denoting *parts*, whence *didere munia* to divide the several parts or offices between the domestics of a house. *Munus* again, which by its suffix implies the existence of a verb to which that suffix is attached, will fairly signify "a share;" and as a share may be in what is coveted or the reverse, it may well have for secondary meanings "a present" or "a duty." So *communis* by its form is well fitted to denote "shared together," and *immunis* "one without a share." Where labour is concerned, the being without a share is a privilege or immunity. On the other hand one who went without his fair quota of provisions, &c. to a public festival, such as were common in the temples of ancient times, was justly held to be deficient in generosity. So far all has been tolerably smooth. The chief difficulty presents itself when we come to the words *munire*, *moenia*, *murus;* and this simply because of the assumption that *munire* has for its primitive meaning "to fortify." Now the phrase *munire viam*, which by the way is one of frequent occurrence, meant rather "to make a (new) road" than "to fortify (an old one)"; and we even find the original sense of "to divide" in this verb. When any large work, whether of a civil or military nature, is to be performed, one of the first duties is to divide it off into portions, on which the several labourers are to work. To divide in this way, we believe to have been the first sense of *munire*, and thus we see both why a plural *mœnia* should be employed to denote the whole of the work done, and why the word should be applicable to the fosses, embankments, &c., as well as to the walls. Still among fortifications a wall of course occupies a marked position, so that it is not surprising if *moenia* commonly denotes "walls," and *murus* always.*

But it remains to detect the verb whence all these derivatives flow. The Greek language at once supplies what is wanted in the obsolete verb *μειρω*, "portion out," whence *μερος*, *μοιρα*, *ειμαρμενος*. But in the Latin also we find abundant traces of our verb. The very verb *men-*, "measure," which we considered at the outset of the present paper, seems to have signified "to divide" before it obtained the other meaning, "to measure." At any rate *metiri* means "to mete or measure out, to divide;" and if it be said that this is a peculiar meaning of *metiri*, we answer that all measuring implies dividing, and in proof we need only refer to the problem, whether geometrical or arithmetical, of finding the greatest common measure. From the same base *men-* "divide" we also derive the word *mem-bro-*† "a part, member or limb." The Greek *μεσο-* "divided, middle," is another related word, and consequently the two Latin words *medio-*, and *dimidio-* are also from this source.‡

The Latin adjective *tener* has been distorted as to meaning by Lünemann under the bias of an incorrect etymology. His article begins: Tĕner, a, um (teneo) I) was den gemachten Eindruck leicht behält, zart, weich, &c., "what easily retains the mark of an impression made upon it." The word however has no relation to the verb *teneo.* A different view is given by Messrs. Liddell and Scott under the word *τερην*, where *tener* is connected with the verb *terere* "to rub." Not a few objects by dint of rubbing or repeated pressure become soft or yielding, as wax, lemons, leather, &c.; and the change from a form *ter-ero- or τερ-ερο* to *ten-ero-* and *τερεν-* was an excusable mode of avoiding the repetition of the *r*. Still we should be better pleased to find a verb signifying "to soak or to wet," which would be in keeping with the adjective *τεραμων* "soft (as from boiling)." Even Forcellini saw the identity of *τερην* and *tener*, and he further mentions, that the Sabines used to say *terenum* for *tenerum*, for which we have the authority of Favorinus in Macrob. Sat. II. 14. Of course the idea of soft must not be confounded with that of mere smoothness. Marble for example may be polished until it is thoroughly *laevis*, but it is still *durus*, the opposite of *tener*. The adjective, which is really formed from *ten-*, the base of *tendo* and *teneo*, is *tenuis*, where the notion of thinness is easily deduced from that of stretching. Unfortunately the true meaning of *tenere* is often lost sight of; people forgetting or not knowing that it means "to hold with a tight grasp," and so essentially differs from *habere*, while it stands in immediate connection with *tendere*, "to stretch."

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* The substance of this is from the Trans. of the Philolog. Soc. vol. iii. p. 205.

† That *membrana* comes from *membro-* (nom. *membrum*) seems strongly supported by the form of the two words; and if we regard *membrum* as a division, we see how it is that *membrana* means a thin membrane. Lünemann however was not very nice in tracing the meaning of the word. Boldly following out his etymology from *membrum*, "a limb," he gives as the first translation of *membrana*, "the skin or membrane that covers the limbs" (die Haut oder das Häutchen womit die Glieder überzogen sind); and in proof of this translation he quotes from Cicero:—"Natura oculos membranis tenuissimis vestivit." This is a bold jump from the ordinary skin to the delicate covering of the eye-ball.

‡ In the last paper we dealt with the derivatives of the obsolete verb *men-* "mind." This also may be a secondary meaning of *men-*, "measure, survey," so that the three obsolete verbs, *men-* "divide," *men-* "measure," and *men-* "mind, notice," all fall together.

CLAUDIUS.

CORPORAL PUNISHMENT.

No. II.

We were speaking, as the reader may remember, of such opinions expressed by clever men, as have, no doubt, from time to time influenced the public mind, with reference to the subject of corporal correction.

Jonson was great as a poet, great as a scholar; like Milton, he condescended to write a grammar; as an amateur he delighted to contemplate the subject of education: on the subject of punishment he expresses himself as follows:—

> "Give me that wit whom praise excites, glory puts on, or disgrace grieves; he is to be nourished with ambition, pricked forward with honour, *checked with reprehension*, and never to be suspected of sloth. Though he be given to play, it is a sign of spirit and liveliness, so there be a mean had of their sports and relaxations. And from the rod, or ferule, I would have them free, as from the menace of them, for it is both deformed and servile."*

Not to mention the somewhat loose and rapid transition from a genius of a certain order, who might easily be taught without castigation, to an apparently universal conclusion with regard to boys in general, who, we think, occasionally require it, he here allows of reprehension, which a page or two before in the same work he had condemned as follows:—

> "A youth should not be made to hate study before he knows the causes to love it, or taste the bitterness before the sweet, but called on, and allured,

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* Jonson's Explorata.

and *treated, and praised, yea when he deserves it not.* For which cause I wish them sent to the best school, and a public, which I think the best."

Let any experienced man imagine for a moment the state of a public school conducted on the principles just enunciated. As, however, after writing one page he has granted us "reprehension," had he written many more on the subject, which he has not, he might have come to an agreement with Solomon, and with his own great cotemporary, whose opinion with regard to corporal punishment is perhaps indicated in the following lines:—

> "Now, as fond fathers,
> Having bound up the threatening twigs of birch,
> Only to stick it in their children's sight
> For terror, not for use, in time the rod
> Becomes more mocked than feared, so our decrees
> Dead to infliction, to themselves are dead,
> And liberty plucks justice by the nose;
> The baby beats the nurse; and quite athwart
> Goes all decorum."*

We have made the above quotations from Jonson, to show how carelessly clever, but unpractised men, throw out their remarks on the subject of discipline. One more instance from the writings of a favourite of our own day, the author of "Sartor Resartus." After certain sneers at "mechanical gerund-grinders, the like of whom will, in a subsequent century, be manufactured at Nurnberg out of wood and leather," he tells us, that

> "The Hinterschlag professors knew syntax enough, and of the human soul, thus much; that it had a faculty called memory, and could be acted upon through the muscular integuments, by appliance of birch rods. Alas! so is it every where, so will it ever be, till the hodsman is discharged, or reduced to hod-bearing, and an architect is hired, and on all hands fitly encouraged; till communities and individuals discover, that fashioning the souls of a generation by knowledge can rank on a level with blowing their bodies to pieces with gunpowder."†

The latter part of the passage may appear somewhat unintelligible, but we will warrant that it is equal in sense to the former. By the Hinterschlag professors are of course typified schoolmasters in general, and, if we must view the question psychologically, we will do many of them the justice of saying, that they have not the slightest idea that either the memory, or the understanding, or the imitative, or imaginative, or any other faculty, is acted upon immediately either by ferule, rattan, birch, whip-cord, or leather; but they have a tolerably clear and well-grounded notion, that the will is; and to this decision Mr. Carlyle might probably come, if it were his calling, instead of enlightening the age in general, to superintend even forty boys in the decided acquisition of certain specific branches of knowledge, honestly, to the full extent of his own and their capacity—a conclusion to which we the more readily incline from the general tenour of this author's works, wherein he all but idolizes strong will, and determined authority, and dooms to swift precipitation over London Bridge[*] all those classes who refuse to allow themselves to be improved. Or is it demanded of us to assent to both propositions,—that the obstinately idle man may be massacred, and that the obstinately idle boy may not be whipped?

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* Shakespeare, Measure for Measure. † Sartor Resartus.

Perhaps we ought not to omit mentioning that famous dinner party at Windsor Castle, where some of the greatest ministers and ambassadors of Elizabeth's court amused themselves with chatting on the subject of corporal punishment, much as the committee-men of a proprietary school might do, and often have done in the present day over their wine and walnuts. Cecil was there, and the great scholar Haddon, Petre, and Sir Richard Sackville (who had attained his honours, as he thought, in spite of the rod, rather than by its agency), with other men of note. Amongst them was Roger Ascham,[†] who records the occurrence. The fact that certain Eton scholars had fled from school "for fear of beating," had led to this discussion, into the details of which we have not space to enter—nor, indeed, are many of the arguments stated. Opinions were divided, but it is only fair to say that Ascham appears to have carried rather a majority in favour of some more lenient plan than that of the rod. For this, after the party broke up, he received the special thanks of Sackville, privately, who told him, that "he would not for a great deal of monie have been that day absent from dinner." Some of Ascham's subsequent remarks on the frequent abuse of corporal punishment, are certainly very excellent. He was not without experience, but his province was that of a tutor at college and at court, not of a schoolmaster to a collection of boys of all ages. We do not therefore bow to his opinion on the general question, nor to that of his partizans in the argument, whose very talents might in a measure prevent them from appreciating the difficulties of teaching, and of learning. We may just add, that the opinion ran boldly counter to the common court theory. The name of Prince Edward's (Edward VI.) whipping boy[‡] is recorded; he is quaintly called by Fuller the Prince's "proxy for correction," and when Barnaby Fitzpatrick was discharged from an office, which Edward's disposition probably made almost a sinecure, he was much distinguished by the kindness of the prince. Even English mothers had long been accustomed to speak firmly and somewhat sternly on this question. In the reign of Henry the Sixth Lady Agnes Paston writes as follows:—[§]

> "Pray Greenfield (the master) to send me faithfully word by writing, how Clement Paston hath done his endeavour in learning; and if he have not done well, nor will not amend, pray him that he will truly *belash him till he will amend*; and so did the last master, and the best that ever he had at Cambridge."

Whilst the dilettante conversation on corporal punishment recorded above was going on, it was perhaps with boys of Master Clement Paston's disposition that the master of Eton had to deal. That master was probably Nicholas Udale, a famous scholar, and declared by

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[*] Latter Day Pamphlets.

[†] Ascham's Works. Introduction to the Schoolmaster.

[‡] Tytler's Edward VI. and Mary.

[§] Paston Letters, vol. xxxv., I., p. 143. Clement Paston was of about the age of fifteen when this direction was given.

Mason, nemine contradicente at the dinner table, to be the best schoolmaster of his day.

So while Busby, whom the pious Philip Henry * pronounces to have been a conscientious, as well as a clever man, was by his earnest labours, and by his fixed determination that his scholars should labour in earnest too, rearing in Westminster a greater number of distinguished men† than it has probably ever been the lot of any one school to produce, under one dynasty; he was earning from speculators on education the title of an unfeeling pedant; perhaps they thought that he was bent upon expiating upon his scholars' backs the sufferings of his predecessor Osbaldiston.‡ We have before mentioned the case of Erasmus, and another eminent master, Lilly, of St. Paul's. Besides the ordinary objections to corporal punishment, it would seem that every looker-on in cases of this kind, is jealous of the agent, feeling in himself that power of measure and proportion, for which he will not give another credit. So it is often in the case of severity to the inferior animals. In fact, there are few matters of action in which, as lookers-on, we are not disposed to interfere, and to check the too little or too much in the conduct of others which we either see, or anticipate, and we are often disposed to take away entirely that power of which we cannot ourselves regulate the exercise. Many a man has been made an opponent of corporal punishment from the mere dread of its abuse.

But to come more immediately to the sentiments of our own day on the subject of discipline. Never was there a period in which the intelligent classes have been more disposed to take an active part in educational measures. The result has not been on the whole calculated to increase our deference for public opinion in these matters. Probably the greatest educational movement ever made in their own behalf by the middle classes, was that which set on foot the proprietary schools—a plausible and in some few instances a successful experiment; that is, where the governing body has been tolerably pacific, and where the neighbouring population has been large. In these schools the committees, for the most part, reserved in their own hands the right of occasional interference, *i. e.*, the right of letting their common sense overrule that of the practical and responsible man, in various details, and in none more than those of discipline. The attempt on the whole has been a failure. In most cases the most ordinary boarding speculator, and the merest creature of scholastic technicalities, has been more successful than the proprietary school, with its warranted masters, and powerful and interested connection. More confidence has been reposed in the man of undivided authority, than in the school where a senate of gentlemen were permitted to interpose with their suggestions, hints, and modifications: for people have, after all, very little respect for those institutions of their own with which they can tamper at pleasure. The proprietary schools have languished, and, after having been stages for the experiments of the common sense of average English gentlemen, have been whistled down the wind, and are now many of them as obsolete as any other worn-out playthings. We do not speak of this by any means as settling the question before us, but we do speak of it as tending to make us cautious of the interference of what is called the intelligence of the day, when set against, or set over, the experience of practical men.

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* Busby does not appear to have been an undiscriminating flogger. "Mr. Henry would say that, as in so great a school there was need of a strict discipline, so, for his own part, for the four years he was at school, he never felt the weight of his hand but once, and then he deserved it." Speaking of Busby himself, he says, "I believe I have as much reason to bless God for him, as any scholar he ever had." There was no part of his life which he did more frequently speak of with pleasure, than the years he spent at Westminster School.—*Williams's Life of Ph. Henry.*

† The reader may refer to Johnson's Lives.

‡ Osbaldiston, Head Master of Westminster, who with Burton, Prynne, Leighton (the Archbishop's father), and Bastwick, was mutilated, by sentence of the Star Chamber.

We think that the effect of a somewhat lax state of discipline at schools, is discernible in the condition of the junior students at our Universities. The requirements at the first public examination are very moderate, quite within the compass of the most ordinary intellect. Yet, as was observed in a letter from a public examiner, to this journal a few months back, the deficiency of the candidates in a great many cases is shameful. Many of these young men have managed to wriggle through their respective schools, with the most successful evasion of common grammatical knowledge, and have entered College ignorant, not of that which has been learnt and forgotten, but of that which has never been acquired. School books are better; masters are generally better, at least in attainment, than they were formerly; but we question whether, even with these facilities, the general run of students is as good as it used to be when the Busbys of former times were accustomed more resolutely to confront idleness, and subdue it by more coarse and cogent means; when there was more of the firm lesson, and less of the loose lecture than is the fashion now. But, if, in the case of classical acquirement where masters must be well aware that their scholars are likely to be submitted to a public test, they still allow so many to pass from their hands in a state of miserable deficiency, what in all reason may we suppose is likely to be the case with those branches of study which the teacher well knows are never likely to be brought to any public or positive trial at all? If such a trial were, or could be made, we verily believe it would be found that there is more hollowness, more what handicraftsmen call "scamping" work, in the scholastic line, than in any trade or profession which could be mentioned; and that a great deal of this hollowness is owing to interference in matters of discipline.

It will have been observed in the passages extracted from the writings of great men of former days who have been adverse to corporal punishment, that they do not adduce the intellectual advancement of their own times as an element in the question, though they no doubt gave to their own age quite as much credit for mental progress as we do to ours. This is a modern absurdity: in the punishment of grown men indeed, as in the case of the army and navy, the educational advancement of the age may make the greatest difference, and public opinion may here interpose itself beneficially either to change principles, or to prevent excesses; for the more fully men have been educated, the more they are likely to be influenced by moral motives;

but, in the case of childhood, and early youth, with their almost inherent faults, one age varies very little from another. The only thing that could possibly make such a difference in this respect as to affect the present argument, would be some decided and ascertained improvement in the training and management of early childhood. Of this we confess we see no symptoms, at least in the middle ranks of life ; if anything, the comparison would probably be greatly in favour of our ancestors. There may have been pets, with coats of many colours, in all ages, but, only to take one instance, the present very general practice of fostering the vanity of little children, by tricking them out with feathers a yard and a half long, and other finery, tells a tale of indulgence to children, and self-indulgence in parents, which cannot be very easily misunderstood. A highly civilized age like ours is indeed necessarily one of numerous and ready gratifications, of which the young have their full share ; and that which under such circumstances would be most likely to maintain the tone and vigour of national character would be a firm code of home and school discipline: but few are willing to have recourse to such a preservative.

We are rather disposed to alloy with indulgences the very education which should counteract their effect; indeed education in its methods and subjects appears to have adjusted itself wonderfully to a weak and faltering discipline; nor must many instances of intense individual application and consequent advancement, mislead us in our estimate. The multifarious and superficial knowledge which makes a show in society, and which is now so much in request, is acquired with far less labour, with less resolute exertion, than was necessary for the few sound acquirements considered essential in a former day. The call upon mental energy for thoroughly and sincerely mastering one of the dead languages, is far greater than that which is made for picking up the elements, and a few of the main facts of the physical sciences; or for gaining such a knowledge of the modern languages as is generally attained in our schools. Insist on the steady and continued exercise of a pupil's powers in some one direction, and in your effort, reluctance, and very often determined resistance must and will in many instances be encountered, and must be overcome: from this the theories of the present day shrink. Coax, talk, facilitate, vary your subjects, dip your difficulties in honey, which in no metaphorical sense you may require yourself, for you will probably be hoarse enough. This will please parents ; but to tell a boy this is difficult, but I will help you to master it, and I will make you do so ; this is forbidden.

It is with the mode of acquisition after all, far more than with the subjects of instruction in the present day, that we are dissatisfied, and we have always looked to the classics as our mainstay in education ; when soundly taught they demand steady application, thought, and effort; if they are not soundly taught, the inference is to us plain, because the age sickens at the thought of firm and unflinching discipline with its accompaniments.

THE CAMBRIDGE INDUSTRIAL SCHOOL.

The first annual report of this school induces us to resume a subject, to which we were led in the month of April, by the appearance of Mr. Munro's pamphlet on Agricultural Colleges. No question connected with the education of the poor, is more difficult than how to bring boys of from thirteen to eighteen years of age within the sphere of any good moral influence. "These boys," as the Cambridge report observes, "are too old for the national school, and are expected by their parents to be earning their daily bread; and for those who are able to obtain regular employment, nothing better can be desired," that is, we would add, in respect of their daily occupations. As regards their lodging and superintendence when their work is over, we think with Mr. Munro, that it would be indeed most desirable if some such plan as that which he has proposed could be carried into effect. But this does not form a part of the professed object of the Cambridge Industrial School. That object is to assist those who are unable to obtain regular employment, because their families may be very far from respectable; or because, when quite young, they were idle, and now, though they may see their error, find it difficult to gain employment; or because, having lost one occupation from misdemeanour, they may find it difficult to recover themselves; or, as often happens, because their work may be uncertain, and they may often have to spend three months at a time in idleness. Not only the outlying parishes of large towns, such as Cambridge, but many of our agricultural villages abound with strong and active lads of this description, whose time is chiefly employed in playing at pitch-halfpenny, and the like games, at the street-corners and other haunts of the idle and unemployed. We need not look to police reports to learn that young persons, thus exposed by poverty and idleness to every kind of temptation, form a large proportion of the criminals in our gaols. But even if the commission of crime were not the result of such a state, these boys, when thus left to themselves, are growing up without acquiring any skill whereby to command employment; they are forgetting the knowledge they may have gained at school, and are under no good religious or moral influence. For these evils it was determined at Cambridge about four years ago to attempt to provide a remedy, by endeavouring to establish an industrial school, that is, "an institution in which boys might be instructed in field-work, and in some of the common kinds of handicraft, so as to be assisted in gaining their own livelihood, and in which they might also be brought under the influence of moral and religious culture."

It was conceived that such a scheme, if judiciously carried out, might operate well in the following ways:—

"(1.) Boys leaving the national school, and not immediately obtaining employment, might be enabled to find occupation, and fit themselves for work whenever an occasion should offer itself; while at the same time they would be prevented from losing the knowledge, both religious and secular, which they had acquired in the national school.

"(2.) Boys who have irregular work, and are at particular seasons of the year, for several months together, without occupation, might find temporary employment, and improve their time instead of wasting it in sheer idleness.

"(3.) Boys who from idleness or from the commission of some petty offence have lost their good character, and therefore find it difficult to obtain employment, might in such an institution have the opportunity of earning a character, and acquiring such habits of industry as should enable the managers of the school to recommend them to employers.

"(4.) Boys who acquire skill in field and garden work, and have learned to use their hands, *e.g.* in mending their own clothes and shoes, knitting their own stockings and the like, will have a great advantage in after life in providing for the comforts of a family, and will be able to employ many spare hours in adding to their comforts, which probably would be much less profitably spent.

"(5.) And the encouraging of this kind of training would probably have a much wider influence than that pertaining to the school itself: because the effect would most likely be to raise the general standard of industrial acquirement, and so incite the poorer classes generally to bring up their children with a better knowledge of useful occupations.

"(6.) And, lastly, the working of such an institution might be most important with reference to emigration. The kind of training which was proposed in the industrial school appeared to be exactly what is required to make a poor man a successful emigrant; and the increasing importance of the subject of emigration makes this view of the institution by no means the least worthy of attention."

In these ways the first proposers of the scheme imagined that good might be done. Upon inquiry, they found schools more or less resembling that which they had imagined, but none which appeared to combine all the qualities which they desired to unite. They felt therefore that their attempt must partake of the nature of an experiment; but they thought that that experiment, in order to be generally beneficial, could be nowhere better made than at Cambridge. Accordingly in December, 1847, a public meeting was held, and a provisional committee, composed of members of the University and Town, was formed. After some delay, the committee obtained and accepted the offer of a piece of freehold land for building purposes, with the power of hiring six or seven acres of ground contiguous, on a lease, for the purposes of a field-garden, in a position well suited for the outlying parishes of the town. Plans were prepared for a schoolmaster's house, school-room, and workshops, which were approved by the Committee of Council on Education, who agreed to grant 106*l*. 10*s*. in aid of the undertaking. The property was vested in the Bishop of Ely and his successors, by his lordship's kind permission. The buildings were not in a habitable state until Lady-day, 1850, when the school was opened, under the direction of a committee of management of the school, which committee had been appointed at a general meeting of the subscribers, in accordance with the provisions of the trust deed. At the opening of the school the following provisional rules were adopted by the committee:—

"The number of boys to be restricted at present to twenty; the number to be allowed to rise from that to the full number proposed, namely fifty, as the committee may see fit.

"Each boy to pay 2*d*. per week; the money to be paid in advance each Monday morning.

"The boys to be provided with a dinner each day at the expense of the school.*

"The following is the provisional time table:—

7—8	Industrial occupation.
8—9	Breakfast.
9—10	Reading, Writing, &c. in school.
10—12½	Industrial occupation.
12½—2	Dinner and recreation.
2—3	School.
3—5	Industrial occupation.

"The attendance of boys on the first opening of the school was not so great as the committee had anticipated: the design of the institution was probably not well understood by those for whose benefit it was intended, and many prejudices were to be overcome. The subjoined table exhibits the average weekly attendance for each month of the year during which the school has been open:—

	1850.	
	April	4
	May	10
	June	11
	July	12
Harvest Time.	August	9
	September	10
	October	12
	November	12
	December	16
	1851.	
	January	20
	February	20
	March	24

"It will be seen that the restriction of numbers which the Committee thought it necessary to make, in order to render the institution manageable in the first instance, was by no means required; it will be seen also that during the last month the restriction has been removed, the Committee not thinking it necessary in the present more settled state of the school to adhere to their original restriction.

"At present there are twenty-eight boys upon the books of the school; their ages are as follows: two of twenty years; one of sixteen; five of fifteen; eleven of fourteen; and nine of thirteen years of age. The total number admitted since the opening of the school is thirty-six.

"On the first opening of the school, the industrial occupation of the boys was entirely confined to gardening; but in the month of May the Committee engaged the services of a shoemaker who should instruct the boys in his trade, especially upon such days as were unfavourable for out-door occupations. Tools and apparatus were purchased for six boys. Since the introduction of shoemaking, the shoes of the boys have been repaired by themselves.

"In the month of December, the Committee further introduced the services of a tailor, who should attend in like manner as the shoemaker, but chiefly on days unfavourable for out-door occupation.† Apparatus was provided also for six boys. The boys now mend their own clothes upon the premises.

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* The following is a specimen of the diet-table for one week:

Monday.—Meat and vegetables.
Tuesday.—Pea-soup, bread and vegetables.
Wednesday.—Bread and cheese, and beer.
Thursday.—Salt-pork, and vegetables.
Friday.—Rice, with sugar; and vegetables.
Saturday.—Bread and cheese, and beer.

The expense is found to average about 1*s.* 2*d.* per week for each boy.

† The general rule for attendance is as follows: the shoemaker on Wednesday, Thursday, and Friday, the tailor on Monday and Tuesday. But this rule is liable to variation in consequence of the weather.

"The arrangement which the Committee have made respecting the choice of trades is as follows: each boy is allowed to select his trade, but having made the selection, he is not allowed to change it until he has acquired some considerable proficiency. It is found that by far the greater number prefer shoemaking.

"In addition to shoemaking and tailoring, some other minor industrial employments have been introduced: the master's wife has taught the knitting of stockings, an invaluable accomplishment for a labouring man, and some time has also been employed in netting.

"It is probable that other employments may be suggested as desirable, and may be introduced from time to time.

"During a part of the year some of the boys were employed in attending upon pigs, but the pigs were the private property of a member of the Committee, and have been disposed of. It is intended, however, as soon as possible, to introduce the keeping of pigs as a permanent part of the establishment, the Committee believing that the habit of tending these animals is one of very great advantage to a poor man.

"The time allotted in a school of this kind to intellectual cultivation is of course small. Nevertheless, sufficient opportunity is given to enable boys to refresh their memory of what they learned in the National School, or if they enter in a complete state of ignorance, to acquire, at least, the arts of reading and writing. In most cases, however, the boys have been previously in a National School, and though many of them have forgotten much of what they once knew, yet they are not in a complete state of ignorance. But this is not without exception; there have been cases in which the education has been entirely neglected.

"The Scriptures are read in the school every day, and apparently with great reverence and attention; several of the boys show much intelligence in answering questions propounded to them. The Church Catechism is taught regularly.

"A library has been established, from which books may be borrowed by the boys, and which is intended also to be useful in supplying occupation during the times allotted to recreation on such days as the weather compels the boys to remain within doors.*

"Hitherto no payments have been made to the boys; in the infancy of the institution, and without sufficient experience of the necessary expense of carrying on the school, the Committee have not felt themselves justified in allotting any of their funds for the purpose of remunerating the more useful of the boys for their work, beyond the daily meal supplied according to the rules of the school. The Committee feel, however, that it is extremely desirable to give some encouragement to those boys who show great zeal and activity in their occupations, especially when the garden crops give evidence (as it is trusted they soon will) of the energy with which the ground has been worked.† It is therefore their intention, in commencing the second year of the school, to set aside a certain sum of money to be disposed of in this manner, and they believe that the very best results may be anticipated from this expenditure."

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* Small plots of ground have been allotted to several of the boys, upon which they are permitted to employ themselves during the time of recreation; the boys themselves have the advantage of any crops which they can raise upon these plots.

† It is due to the master and to the boys to state, that the ground when first taken possession of by the Committee was in an incredibly foul condition, and has been brought into a tolerable state only by the greatest patience and perseverance. A great part of the land also is of a very stiff clayey character, very difficult for spade husbandry, especially when the spade is handled by mere boys.

The effect of the Industrial School up to the present time, is thus spoken of by the Committee who meet every Monday at the school, and have therefore been able to watch every movement which has taken place:—

"There are two ways in which the effect of the school upon the boys must be estimated, namely, as it tends to make them useful and capable of gaining a livelihood, and as it affects their moral character. For the first of these the Committee are obliged partly to rely upon the testimony and opinion of the Master; but they have also had good opportunities of watching the boys at work, and have been much struck with the regularity and diligence of their operations, and they believe also that the appearance of the garden will be a sufficient evidence of the activity and skill of those who have converted it into its present state. It is to be noted also, that whereas at the first opening of the school the boys could by no means be trusted to proceed with their work when the master's eye was not upon them, they can now be depended upon to continue their work without his constant supervision. With regard to handicraft employments, there is scarcely a boy in the school who cannot either mend his own shoes or his clothes, and several have been able to turn their skill to profit in their evenings at home. Nevertheless the nature of the case prevents the committee from being able to give any very definite proofs of the actual practical utility of the system which has been adopted, such at least as they trust they will be enabled to give in future reports, when time shall have elapsed sufficient to exhibit the results of the training upon those who have left the school and have begun to earn their own livelihood; but they have no hesitation in saying, that the results are, to their own minds, quite as satisfactory as they could have anticipated, and that they feel as sanguine as ever concerning the soundness of the principles upon which the school has been founded.

"With regard to the moral effect of the school, the committee have had various opportunities of observing with great delight the influence for good which the master has been able to obtain over the minds of the boys. The complaints which the committee have had to consider have been extremely few, and in only one instance have they had to sentence a boy to expulsion, or rather to determine not to receive one who had twice before deserted the school, and been taken back again upon his expressing his repentance. The committee have been also glad to observe, that in several instances the attendance at the industrial school has led to attendance at the Sunday school, and at church. The intercourse which has been the result of the industrial school has likewise been the means of enabling the master and the members of the committee to bring before the boys the evil of various bad habits, such as the use of obscene and profane language, attendance at prize-fights, &c., and it is believed that much good is being effected in this manner, which could not have been attempted without such an opportunity of moral influence as this school affords. Bearing in mind the rough nature of much of the material upon which they are endeavouring to operate, the committee do not desire to be too sanguine as to the palpable nature of the moral effect produced upon the boys; they have however been themselves as much surprised as delighted at some of the results which they have witnessed; but at least the docile character of the boys, which may be witnessed by any person who will take the trouble to visit the school, speaks for itself; and moreover the habits of scrupulous cleanliness, neatness, and order, which form a great feature of the management of the school, cannot fail to tell in the long run upon the moral habits and character."

In alluding to the future prospects of the school, the report suggests that much good might be done by those who take an interest in it, if they would occasionally visit and inspect the work that is going on, This suggestion appears to be especially deserving of attention, when we remember that if this school prove permanently successful, situated as it is at Cambridge, its beneficial effects can hardly fail of being multiplied a thousand-fold. The evil for which it is there sought to provide a remedy, exists in innumerable villages as well as towns throughout the kingdom. By visiting, during their residence at the University, the Cambridge Industrial School, and observing the experiment which is now being made there, those who are to become pastors and teachers from one end of the land to the other, will have abundant opportunities of becoming sufficiently familiar with its details to judge of its applicability as a remedy for a similar evil in the localities in which they may be settled.

The circumstance that the managing committee is composed of members both of the Town and University, is very favourable to the success of the experiment. This will ensure on the one hand a due proportion of men of practical and local knowledge, and on the other a succession of talented and energetic individuals, who will not fail to carry on the experiment with spirit, and to devise improvements in the mode of conducting it.

A desire is expressed by the committee to assist in clothing those who have been for some time in the school, and have shown diligence and earned a good character. With this view it is stated in the report that any cast-off garments will be acceptable, and for this excellent reason, "that as shoes and clothes are mended upon the premises, it is almost impossible that any article should be so much worn as not to be considered a useful contribution." We will only add, that we heartily wish the institution success, and shall be happy if the pages of the "English Journal of Education" can in any way be made subservient to the promotion of the important work in which the supporters of the Cambridge Industrial School are engaged.

PRACTICAL HINTS FOR THE SCHOOL-ROOM.
GEOGRAPHY.

(*Continued from page* 262.)

The reader is referred to the last number of the Journal for explanation of the facts and observations subjoined. They are merely intended to aid a class in filling up the "*Remarks*" upon the different counties, according to the plan before laid down. What the pupils have to do, is simply to arrange these facts under the *counties* to which they severally relate, and to describe the distinguishing features in the writings and characters of these eminent men.

DISTINGUISHED ENGLISHMEN, POETS, DIVINES, &c.

Names.	*Born where and when.*	*County.*	*Died.*
1. Edmund Spenser	London, 1553	Middlesex	1588-9, author of "Fairy Queen."
2. William Shakspeare	Stratford-on-Avon, 1564	Warwickshire,	1616, great dramatic poet.
3. Benjamin Jonson	Westminster, 1574	Middlesex	1637, dramatic poet.

Names.	*Born where and when.*	*County.*	*Died.*
4. Edmund Waller	Coleshill, 1605	Warwickshire.	
5. Alexander Pope	Lombard Street, London, 1688	Middlesex	1744.
6. John Dryden	Aldwinkle, 1631	Northamptonshire	1700.
7. Joseph Addison	Milstow, 1672	Wiltshire	1719.
8. Thomas Gray	London, 1716	Middlesex	1771.
9. Mark Akenside	Newcastle-upon-Tyne, 1752	Northumberland	1770.
10. William Collins	Chichester, 1720	Sussex	1756.
11. Thomas Chatterton	Bristol, 1752	Gloucestershire	1770, poisoned himself.
12. Percy Bysshe Shelley	Field Place, 1792	Sussex	1822, an infidel—drowned.
13. Sam. Taylor Coleridge	Bristol, 1770	Gloucestershire	1843.
14. William Cowper	Berkhampstead, 1731	Herts	1800.
15. John Milton	Bread Street, London, 1608	Middlesex	1674.
16. William Shenstone	Hales Owen, 1714	Shropshire	1763.
17. Henry Kirke White	Nottingham, 1785	Nottinghamsh.	1806.
18. William Wordsworth	Cockermouth, 1770	Cumberland	1850.
19. Edward Young	Upham, 1679	Hants	1765.
20. Robert Southey	Bristol, 1774	Gloucestershire	1840.
21. Thomas Ken	Berkhamstead, 1637	Herts	1711, Bishop of Bath and Wells.
22. John Jewel	Buden, near Ilfracombe, 1560	Devon	1571, Bishop of Salisbury.
23. Richard Hooker	Heavitreee, near Exeter, 1553	Devon	1660, Rector of Bishop's Bourne.
24. Lancelot Andrews	London, 1565	Middlesex	1626, Bishop of Winchester.
25. Jeremy Taylor	Cambridge, 1613	Cambridgeshire	1667, Laud's Chaplain, Rector of Uppingham, afterwards Bishop of Down and Connor.
26. Thomas Secker	Sibthorpe, 1693	Nottinghamshire	1768, Bishop of Bristol, of Oxford, Archbishop of Canterbury.
27. William Laud	Reading, 1573	Berkshire	1644, Archbishop of Canterbury.
28. William Paley	Peterborough, 1743	Northamptonshire	1805.
29. John Pearson	Shoring, 1612	Norfolk	1686.
30. Dr. Watts	Southampton, 1674	Hants	1748.
31. John Wesley	Epworth, 1703	Lincolnshire	1791.
32. John Wickliffe	Wickliffe, 1324	Yorkshire	1384.
33. Alfred the Great	Wantage, 849	Berkshire	900.
34. Roger Bacon	Ilchester, 1214	Somersetshire	1292.
35. Samuel Foote	Truro, 1721	Cornwall	1777.
36. Edmund Kean	London, 1787	Middlesex	1833.
37. Robert Blake	Bridgewater, 1509	Somersetshire	1658.
38. Sir Francis Drake	Tavistock, 1545	Devon	1596.
39. Charles Lamb	London, 1775	Middlesex	1834.
40. Sir Francis Chantry	Norton, 1781	Yorkshire	1841.
41. Sir Humphry Davy	Penzance, 1778	Cornwall	1829.
42. John Locke	Wrington, 1632	Somersetshire	1704.

	Names.	*Born where and when.*	*County.*	*Died.*
43.	Lord Nelson	Burnham Thorpe, 1758	Norfolk	1805.
44.	Sir Isaac Newton	Woolsthorpe, 1642	Lincolnshire	1727.
45.	Sir Walter Raleigh	Budleigh, 1552	Devonshire	1618.
46.	Sir Joshua Reynolds	Plympton Earle, 1723	Devonshire	1792.
47.	Lord Bolingbroke	Battersea, 1672	Surrey	1751.
48.	Edward Gibbon	Putney, 1737.		1794.

FACTS GENERAL.

1. Many Roman stations in the county of Durham.
2. Near Leighton Buzzard, Bedfordshire, are the remains of a Roman military station.
3. School at Bury-St.-Edmunds, founded by Edward VI.
4. At Nevil's-Cross, near Durham, the English, under Queen Philippa, defeated the Scotch under David Bruce.
5. Near Wycomb, Bucks, an engagement took place between the Royalists and Roundheads, in which Hampden fell.
6. Near Woodstock, Oxfordshire, is Blenheim House, the seat of the Duke of Marlborough.
7. Winandermere Lake, Westmoreland, contains thirteen islands.
8. Queen Elizabeth founded Kirkby Stephen Grammar School, Westmoreland.
9. At Worstead, a town twelve miles N.E. of Norwich, a colony of Flemmings settled in Henry I.'s reign, and established a woollen manufactory.
10. Thetford, Norfolk, once contained twenty churches and eight monasteries.
11. Oxford Bishoprick, one of the five badly endowed by Henry VIII.
12. At Monmouth is an ancient castle.
13. Abergavenny Free School, founded by Henry VIII.
14. Matlock and Buxton, Derbyshire, famous for their mineral waters.
15. At Shrewsbury, Shopshire, a bloody battle was fought, A.D. 1403, between Henry IV. and Harry Hotspur, son of Duke of Northumberland, assisted by Earl Douglas and Owen Glendower. The rebel army was defeated, and Hotspur slain.
16. King John died at Newark, Notts.
17. The first mill for throwing silk was brought from Italy, and established at Derby.
18. Worcester Grammar School, founded by Henry VIII. Butler, author of Hudibras, was educated here.
19. At St. Albans, Herts, Boadicea massacred 70,000 Romans. Here St. Albanus suffered martyrdom, A.D. 303. During the wars of the roses, two great battles were fought at this place.
20. At Tutbury, Staffordshire, is a castle built in the time of William the Conqueror by Henry de Ferrars.
21. In the time of James II., the greater part of Essex was an extensive forest—parts remain called Epping and Hainault Forests.
22. About one mile from Matlock, Derbyshire, is Cromford, where Sir R. Arkwright erected his first spinning mill.
23. At Evesham, Worcestershire, a battle was fought, 1265, in which Prince Edward rescued his father Henry III. and defeated Simon de Montford.
24. At Worcester, Charles II. and the Scotch were defeated by the Parliamentary army, A.D. 1651.
25. The choir of Worcester cathedral built in Henry III.'s reign.
26. Edward VI. founded the Grammar School of Louth, Lincolnshire.

27. At the Grammar School, at Grantham, Lincoln, Sir Isaac Newton was educated.
28. Lichfield, Staffordshire, means dead-field. In the time of the Great Rebellion, Lichfield stood a siege; Lord Brooke, the rebel leader, was shot from the great spire of the cathedral.
29. At Epping, Essex, less rain is supposed to fall than elsewhere in England.
30. At Tilbury Fort, Essex, opposite Gravesend, Queen Elizabeth had her camp when the Spanish Armada invaded England.
31. Richard Cromwell retired to Cheshunt, Herts, and died 1712, aged eighty.
32. Wiltshire abounds in British and Roman remains. Numerous barrows or tumuli are found in the Chalk Downs; near Abury is one called Tilbury Hill, which covers about five acres of ground, and is about 170 feet high.
33. About two miles from Amesbury is Stonehenge, noted for its Druidical remains.
34. Portland stone found in Portland Island, Dorsetshire. Purbeck stone from the district called Purbeck, on the east of Weymouth.
35. There are several Logan rocks, or rocking stones in Cornwall.
36. Cornwall was erected into a Duchy, A.D. 1337, in favour of Edward the Black Prince, and settled by Act of Parliament on the eldest son of the King of England.
37. William, Prince of Orange, landed at Torbay, Devonshire, A.D. 1688.
38. The Breakwater, three miles south of Plymouth, is a heap of stones about a mile long, and was three or four years in building, and contains 524,691 cubic yards of solid stone.
39. Chester, one of the five bishoprics badly endowed by Henry VIII.
40. Cæsar supposed to have landed at Lyme, Dorsetshire.
41. Sherbourne Grammar School, founded by Edward VI.
42. Great part of Salisbury Cathedral built in the reign of Henry III.
43. Chichester Cathedral founded A.D. 1108; present building in the thirteenth century.
44. Surrey, noted for its hospitals and prisons.
45. Battle of Lewes, Sussex, A.D. 1264, between the barons headed by Earl of Leicester and Henry III., the latter taken prisoner.
46. Dulwich College, Surrey, founded by Edward Alleyn, an actor, cotemporary with Shakspeare.
47. On Gladmore Heath, near Barnet, Herts, a great battle was fought, 1471, between York and Lancaster, on Easter Day.
48. Barnet Grammar School, founded by Queen Elizabeth.
49. The Observatory called Flamstead House, was named after John Flamstead, the first Astronomer Royal, who was born at Denby, Derbyshire, 1646.
50. Henry VIII. made Gloucester a Bishop's See.
51. At Berkeley Castle, on the Severn, Edward II. was murdered, A.D. 1327, by Gurney and Maltravers.
52. At Tewkesbury, Gloucestershire, a battle was fought between York and Lancaster, in which Margaret was defeated, and her son, Prince, taken and stabbed by his uncle.
53. In a castle, S.W. of Wimbolton, Huntingdonshire, Catherine of Aragon lived, after her divorce from Henry VIII.
54. Alfred the Great, born at Wantage, Berkshire, A.D. 849; died at Oxford, and buried at Winchester.
55. Principal part of Windsor Castle built in the reign of Edward III., Architect, William of Wykenham.
56. Cardinal Wolsey died at Leicester Abbey, on his way to London for trial.

57. In the castle of Ashby-de-la-zouch, Leicestershire, Mary Queen of Scots was confined by the Earl of Huntingdon.
58. Coventry, famed for ribbon manufacture. Henry VIII. founded Grammar School.
59. At Edgehill, on the borders of Warwickshire, the first battle was fought between Charles I. and the Parliamentary army.
60. At Preston, Lancashire, an engagement took place between the expelled Stuarts and the reigning powers.
61. Edward I., died at Burgh-on-the Sands, Cumberland, A.D. 1307, on his way to invade Scotland.
62 At Rye-house, Cambridge, a plot was contrived to kill Charles II. which cost Lord Russell his life.
63 Lantern in Ely Cathedral built in Edward I.'s reign; Lady Chapel, &c., in Edward III.

Correspondence.

THE BOY AT THE EXHIBITION.

SIR,—I was delighted to see in your last two numbers "The Schoolmaster at the Exhibition." It seemed to me a most sensible thing to send him there, and I put off reading both the papers till I had myself paid a visit to the Crystal Palace, that I might enjoy them thoroughly and profit by them in the highest degree. But, I find upon perusal, that "the Schoolmaster," is not a schoolmaster, but a philosopher; that his thinkings more properly belong to the time when the works of industry shall have been scattered again among the nations—that he is already living *after*, not *at*, or during the Exhibition.

Your Journal deals with practical matters; allow me to make a suggestion eminently practical. Let me recommend all parents, guardians, and teachers, at once to send their sons, wards, or pupils, to the Exhibition while it lasts, and let us philosophize when it has ceased to be. All who are above eight years of age should have the opportunity of seeing the most profitable as well as the most wonderful of sights; neither time nor expense should be taken into the account. Nothing must be considered an excuse on this side of impossibility. Where it is out of the power of parents to accompany their children, let tutors and masters try to take their place. Wherever I have gone since my return from town, I have never seen parents—even common acquaintances—without begging them to place themselves and their children in an excursion or ordinary train, and not to allow so splendid a privilege to pass unimproved. Let me beg of you, to employ your larger powers and opportunities towards the same object. At all events let me ask you to publish this letter. Consider how the Exhibition is calculated to open the minds of young people, to sharpen their intellect, and to enlarge all their faculties. Where can they get so profitable a lesson? A week there would be of much more service than six months at school. If a boy has knowledge, he will here rapidly increase it; if he has none, he must get the desire of it. If a boy has taste, he may here enjoy or correct it: if he has not, a taste will be here created. Sculpture the most beautiful, carving the most exquisite, fabrics the most delicate, paintings and models which the most ignorant can appreciate, all that is grand, and all that is minute, works of fabulous value, and works of every-day use; the most precious stones, and the most ingenious machines, are brought together under one roof; and the education of the young through them is, I believe, their noblest use. All nations have conspired to serve the English boy; and, if only you place him in the Exhibition, serve him they will.

I am, sir, one that has profited by the Exhibition, and
A Friend to the Young.

July, 1851.

PARENTS AND TEACHERS.

Sir,—The following passage occurs in Mr. Gresley's "Church Clavering," and there is so much truth in it, that I think it well worthy to be extracted for the benefit of those who may not have seen the book itself:—

> "This is one great difficulty which we schoolmasters find in doing our duty to boys, and at the same time satisfying their parents. Parents wish their boys to be pushed on; the conscientious master prefers to keep them back till they are well grounded; because he knows that this will be of most benefit to them in the end. Parents like to see some visible sign of their progress; the master, who watches the opening of their mind, knows that they are often making most progress when no great results are perceptible. We all know that in building a house, a great part of the work is done underground. When the foundations are brought up to the level of the soil, a superficial observer might suppose that very little had been done; and yet in reality great progress towards building the house would have been made. Just so in education; a great deal may be silently going on, which is not seen above-ground—a great deal of foundation-work, upon which the future structure is to be reared. But parents are too apt to be impatient, and expect the structure to be reared before the foundation is laid. And schoolmasters are sometimes too ready, nay, almost obliged in self-defence, to yield to this feeling of the parents. They will send the children home with strings of hard names of places, and a smattering of two or three sciences, and a number of specimens of fields measured and maps copied, and account-books with swans and stags and German-text flourishing all over them. This is all very well; but it is no criterion of real progress. When a boy is really able to do his sums, there is no reason why his account-book should not be finished off in a neat and ornamental manner: and when he has mastered the art of land-surveying scientifically, let him make as many maps, and measure as many fields as he pleases. But what I object to is, the loss of valuable time in mere outside show. A conscientious schoolmaster is often obliged to run the risk of offending parents, and appearing to bring their children less forward than his competitors, because he will not give in to their plans, and sacrifice the sure and gradual development of his scholar's faculties to what is entirely superficial."

Let a passage like this take the place of one of those most absurd pieces of calligraphy called holiday-letters; and surely a more healthy action between the two most important parts of the educational machine—the parent and the teacher—would be the result.

I am, sir,
A Parent and a Teacher.

July, 1851.

Notices of Books.

THE PARENT'S GREAT COMMISSION; OR, ESSAYS ON SUBJECTS CONNECTED WITH THE HIGHER PART OF EDUCATION. Second Edition, pp. 184. (London: *Longmans*, 1851.)

It is scarcely possible to overrate the importance of the subject of this little volume, which is described in the title page as "the higher part of education," and which it is "the parent's great commission" to conduct. Few readers, however, it is to be feared, will now-a-days be ready to infer, that the subject proposed under this description is "moral training." For in an age which prides itself upon its refined taste and intellectual culture, there is an over-anxiety to develop the mental faculties and to impart accomplishments, whilst the education of the heart and the formation of the character are comparatively neglected. Yet who can calculate all that is involved in the latter, or the many consequences that depend upon the manner in which it is performed? And yet performed it must be, and performed by parents, whether they will or not, "whether they are conscious or unconscious of the process that is passing through their hands." "We look around," says the author before us, "upon the families of the land, and, ordinarily, at least, such as are the fathers, such were their progenitors, and such will be their children. The evil will, for the most part, rear the evil, and the good will nurse the good. The common scourge of his race, or the benefactor of mankind, seldom belies his training. The fathers were as their education, and so will be their children." "Within its own peculiar sphere, domestic government is more important than any other; for the conduct and training of the family affect every institution existing upon earth." To illustrate and confirm this view of education, and to assist parents in discharging the duties suggested by it, is the object of the writer, who divides the subject into chapters or rather essays, upon parental responsibility, family happiness, family union, parental authority, parental sympathy, parental influence, the use of praise and dispraise, and on the formation of character. We have marked several passages under each of these heads, with which we should have been glad to enrich our pages, as they well deserve the serious and thoughtful attention of all who are concerned in education. Our limits will only permit us to extract a few of them, and for the rest we must refer our readers to the work itself, which we most strongly recommend to their perusal.

PARENTAL RESPONSIBILITY.

"Would we look for one who is signally the pest and bane of his land, our eyes will pass by him who is summoned to her bar for breach of her laws; she has a more insidious foe—a foe whose harm is more sure, more extensive, and more abiding; they will fix on him who might have blessed her in his sons, but who has originated evil dispositions, and cradled evil tendencies at his home, has corrupted the fount of honour and virtue there, and thereby has marred it in her senates, her cities, or her marts."

"Parents owe a debt to ages yet unborn; for who shall say at what point in the stream of time, the personal character of any individual now on earth shall cease to influence? A sentiment, a habit of feeling once communicated to another mind, is gone, it is beyond recall; it bore the stamp of virtue, it is blessing man and owned by heaven; its character was evil, vain the remorse that would revoke it, vain the gnawing anxiety that would compute its mischief; its immediate, and to us visible effect may soon be spent its remote one who shall calculate? The characters of the dead are inwrought into those of the living; the generation below the sod formed that which now dwells and acts upon the earth; the existing generation is moulding that which shall succeed it; and distant posterity shall inherit the characteristics which we infuse into our children to-day."

There are some excellent remarks on "family happiness;" under which head the writer observes, that "joyous gaiety is the condition of the dawn of life, and is common to all; and that the balance of happiness is perhaps ordinarily in favour of those who having fewer artificial indulgences and less excitement, more especially lie open to the natural elasticity of the age." The following passage well deserves to be carefully noted by parents:—

"Happily childhood introduces and perpetuates domestic happiness in maturer years. It opens the way for friendship between parent and child when the days of inequality and dependence shall have passed away. It is the base of true and lasting power—power, whose seat is in the heart. It must be so, for it is allied with all that commands reverence and engages love, with all that brings man into near and hallowed connection with his God, the connection which throws sanctity over human ties. Coleridge writes, 'No emperor hath power to prescribe laws for the heart.' The poet is right, but a parent has such power."

FAMILY UNION.

"It is for parents to create, promote, and breathe forth the spirit of union. The children should surround them as a circle, every part of whose circumference is closely woven together and connected with themselves as its centre. They should be literally its centre; the fountains of enjoyment, of love, of sympathy; the teachers and patterns of moral right. They should be linked with every principle, with every emotion, with every hope, with every affection. All that is dear to their children, all that gives pleasure to their existence, should be associated with them."

"Parents hold in their hands the means of uniting child with child. By identifying the interests of each with the interests of all, and the happiness of each with the happiness of all; by allowing each in turn to reap the little services of another, or to know the gratification of yielding them, by manifesting equal affection to all, they may spread the leaven of uniting love. And as age advances, as young souls become conscious of their destinies, the bond will tighten."

Under the head of "parental authority," notice is taken of its arbitrary exercise in past times, and of the reaction which has followed, and occasioned an opposite error in the present day. Too truly does the writer observe, that "the peace of many a family has been wrecked by the surrender of parental authority, and many parents are now contemplating with anguished spirit, the unruly and unholy character of children they fondly hoped would grow up well, though they themselves threw away the means by which they were to effect their training in the ways of virtue, submissiveness, and holiness. Let others learn by their dear-bought experience." But whilst recommending parental authority as essential to moral training, parental sympathy is also strongly enforced, as that by which real power will be chiefly obtained and character formed, and which, "throwing around authority the garb of love, softens and graces its exercise, and prevents it from degenerating into harshness." "The tenderness of sympathy extended to a sinning child, measuring his temptations, weighing his propensities, feeling for his weakness, loving him through his very sin, *when joined with a sound corrective system,* penetrates the soul, softens the callous heart, and prepares the way for reform. We advocate no palliative system, no lessening the character of evil, no mitigation of effort after perfect right, but a healthy corrective treatment, which leans to the probe rather than the salve. We raise no question as to whether discipline shall be exercised or not. The question lies in another quarter. It asks, whether there shall be merely external compulsion and restraint, or whether attempts at personal discipline shall be induced under the guiding love, the ungiving firmness, the superior holiness, of those already disciplined by heaven?"

We have already greatly exceeded our limits, but the importance of the subject, and, as it appears to us, the prevalence of the error, which the following extract points out, will, we trust, be accepted as a sufficient reason for its insertion :—

> "The cares of parents to promote enjoyments coming more immediately within the comprehension of the young than their more anxious and important labours on their behalf, specially and strongly excite their gratitude and affection; they evince, in a manner which is fully appreciated, (at the age,) parental sympathy and love, and induce a return. This is true, so long as indulgence is shown in tenderness and a promotion of salutary enjoyments; it ceases to be so, so soon as it descends to gratify self-love or sensual appetites; for then, addressed to the selfish principle, which will respond, the child will make no return in love or gratitude. How should he? The generous sentiments are not awakened by the gratification of the grovelling propensities; grateful affection is not elicited by that which feeds the love of self; mental and moral vigour are not recruited by enjoyments offered to the animal."

THE BOOK OF ALMANACS. COMPILED BY AUGUSTUS DE MORGAN, SEC., R.A.S., F.C.P.S., OF TRINITY COLLEGE, CAMBRIDGE, PROFESSOR OF MATHEMATICS IN UNIVERSITY COLLEGE, LONDON. (London: *Taylor, Walton, and Maberley.*)

THE "Book of Almanacs" is an extraordinary publication. It is composed of only thirty-five almanacs, and by means of an index of reference, the almanac may be found for every year, whether in old style or new, from any epoch, ancient or modern up to A. D. 2000. We are thus furnished with a supply of almanacs for past ages, and also for nearly fifty years to come. Besides the book of almanacs the author has supplied the means of finding the day of any new or full moon from B.C. 2000 to A.D. 2000. The object and plan of the work will be best understood by an extract or two from the author's preface, and the introduction to the almanacs :—

> "I do not pretend to supersede the common almanac, which abounds in matter beyond prediction. But I hope to be of some use to the constructors of the almanacs, in a few details in which they are not always accurate, and in which I have only been saved from error by making all almanacs at once,

and by the inquiries which were thereby rendered necessary. My main object is, in matters purely chronological, to supply the place of the old almanac, which is never at hand when wanted—of the older almanac, which never was at hand—of the future almanac, which is not yet at hand—and of the *universal almanac* in every shape."

In the introduction the author observes, that "the work is intended,—

"1. To enable any one, without calculation, to place before himself the almanac of any year of old style, or any year of new style, from A.D. 1582 to A.D. 2000; with its Roman and modern European month days, its week days, feasts fixed and moveable, law and university terms.

"2. To give the means, without calculation, of verifying or restoring any part of the index, in the event of a figure being misprinted or broken out of the stereotype plate.

"3. To enable the reader, without calculation, to decide on the *moonlight* of any month: that is, to find at once, within a day (in some rare cases with an error of two days), the days of new and full moon.

"4. To supply a very short and easy method of calculating, always within two hours, and usually within less, the times of new and full moon for any month of any year from B.C. 2000 to A.D. 2000."

From these extracts our readers will learn the object of this valuable publication. The almanacs are preceded by some tables, two of which are tables of indices, the one termed "Old-Style Index," and the other "New-Style Index;" and to find the common almanac for any year we have only to look into the new-style index and find the year; the number following the dominical letter or letters is the number of the almanac for that year. Thus, the year 1859, new style, has the epact 26, the dominical letter B, and the almanac numbered 34 in the list. There is also an almanac (36) containing fixed days of Saints, Martyrs, Festivals, &c., and another (almanac 37) for new and full moons.

These almanacs and tables of indices, &c., which occupy eighty-nine pages, are preceded by a copious introduction of nineteen pages, explanatory of the manner of using the work; but many persons will require only the directions contained in *two* lines at the head of the table entitled "New-Style Index." For verification of dates this work will be exceedingly useful, and we strongly recommend it. As its title imports, it is in reality "The Book of Almanacs."

GENERAL EXAMINATION OF CANDIDATES FOR CERTIFICATES OF MERIT.

EASTER, 1851.

PHYSICAL SCIENCE.

(Three Hours allowed for each Paper.)

SECTION I.—Describe and explain any experiments you may have seen made with one of the following instruments:—

1. An air pump.
2. An electrifying machine.
3. A galvanic battery.

SECTION II.—1. Give examples of the expansion of metals by heat. How is a thermometer made and divided?

2. If heat be applied to a long tube full of water at the top, it will be a long while in becoming heated, but if it be applied at the bottom it will be heated quickly: account for this, and describe some one of the useful applications of the principle it illustrates. If, instead of heat being applied, first at the top and then at the bottom, *cold* had been so applied, what would have been the result?

3. How may water be frozen in an air-pump, and on what principle?

SECTION III.—1. What laws do the reflexion and the refraction of light follow?

2. In what way is it that a glass prism separates a beam of light into its different coloured rays?

3. Explain the formation of the image of an object of the same size before a plane mirror, and of a different size before a convex or concave mirror.

SECTION IV.—1. How may hydrogen gas be obtained, and what are its properties?

2. What gases mingle to form the atmosphere, and how may they be separated? Which ministers to the support of animal, and which of vegetable, life? and what organs of animals and vegetables respectively are provided to receive them?

3. According to what law of quantity do all bodies unite chemically as regards weight; and gases, as regards volume?

ALGEBRA.

SECTION.—1. Add together

$$3a - (4b - c) - d \text{ and } a + (b - 3c - d),$$

and subtract from their sum

$$b - (c - d + 4a).$$

2. Divide.

$$-abx^5 + (ab - ac + bc)x^3 - bcx^2 + (a + c)cx - c^2 \text{ by } -ax^2 - ax + c.$$

3. What is the value of

$$\frac{(x^2 - \sqrt{-1}\,x - 1)(\sqrt{-1}\,x^2 - x - \sqrt{-1})}{\sqrt{-1}}?$$

SECTION II.—1. How do you prove that the subtraction of a negative quantity is equivalent to the addition of a positive quantity of the same numerical value. Illustrate your proof by practical examples of the truth of this rule, as applied to measures, weights, or distances.

2. Add together—

$$\frac{a^2 + ax}{a^2 + ax + x^2}, \quad \frac{a}{a - x}, \quad \frac{a^2 + x^2}{a^3 - x^3}.$$

3. Which is the greater, a proper fraction, or its square, and why? Find the difference between

$$\frac{x-1}{x-2} \text{ and } \left(\frac{x-1}{x-2}\right)^2.$$

SECTION III.—1. Solve one of the following equations—

$$\begin{cases} 3x = 4 - 2y \\ 3y = 4 + 2x \end{cases}.$$

2. $(2x - a)^2 - 2(x - b)^2 = (a - 2b)^2.$

3. $$\begin{cases} \sqrt{\dfrac{3x - 2y}{2x}} + \sqrt{\dfrac{2x}{3x - 2y}} = 2 \\ x^2 - 18 = x(4y - 9). \end{cases}$$

SECTION IV.—1. What do you mean by a *vinculum*, a *reciprocal*, an *impossible quantity*, a *ratio*, a *multiple*, a *measure*, a *prime number*?

2. What is a surd? Reduce $\sqrt{4a^2x}$ and $\sqrt{3a^2x^2}$ to equivalent surds having a common index. Find the sum of $\sqrt{192}$ and $\sqrt{24}$.

3. What do you mean by *indeterminate problems?* In how many ways may the sum of £5 be paid in crowns and seven-shilling pieces?

Section V.—Divide the number 90 into four parts, such that the first increased by two, the second diminished by two, the third multiplied by two, and the fourth divided by two, shall be all equal to the same quantity.

2. A person spends half a crown in apples and pears, buying his apples at 4, and his pears at 5, a penny: he sells half his apples, and one third of his pears at the same rate at which he bought them, and receives thirteen pence for them. How many did he buy of each?

3. A and B engage in business with a joint capital of £100. A leaves his money in the business half a year, and B for four months: each, on leaving, takes out £99 as his share of capital and profit. Determine the original sum invested by each, and the rate per cent. per annum of the profit.

MISTRESSES.

HOLY SCRIPTURES.

Section I.—1. Give an account of Aaron and Miriam.

2. Enumerate the miracles wrought by Elisha.

3. What events are associated with these places:—Dothan, Jezreel, Megiddo, Ezion Geber, Gaza? Name the principal cities of the Moabites, Syria, and Egypt, which are connected with sacred history.

Section II.—1. What prophecies of Hosea, Micah, and Jeremiah are quoted in the New Testament, and on what occasions?

2. Give an account of the predictions of Jacob. Trace the accomplishment of those which refer to Judah and Joseph.

3. Describe the Holy of Holies, and the courts of the Temple. Give references to the New Testament, showing the typical character of the Tabernacle and its ceremonial rites.

Section III.—1. State all that is known of Timothy and describe his character.

2. Give a full account of St. Paul's last apostolical journey.

3. What events are associated with these places in the New Testament: Enon, Bethesda, Bethany, Joppa, Lystra, Cenchrea, Paphos, Malta, Forum Appii.

Section IV.—1. Prepare the notes of a lesson on the parable of the wedding garment.

2. Or on the character of St. Paul.

3. What epistles of St. Paul and St. John were addressed to individuals, and on what occasions? Give an account of one of these epistles.

CATECHISM, LITURGY, AND CHURCH HISTORY.

Section I.—1. Prepare the notes of a lesson on one of these subjects:

1. The privileges of Christians.
2. The necessity of faith.
3. Prayer.

Section II.—1. In what respects do the three creeds agree and differ? How is the doctrine of our Lord's person defined in the Nicene or Athanasian Creed? Give proofs from Holy Scripture.

2. Give an account of the various forms of thanksgiving in our Liturgy. Show their Scriptural character.

3. What alterations have been made in the Prayer Book since the reign of Edward VI.?

Section III.—State the doctrine of our Church on one of the following points as defined by the Articles of Religion:

1. On the sinlessness of Christ.
2. On the Lord's supper.
3. On traditions.

SECTION IV.—1. Give a brief account of the early British Church.

2. At what time did these ecclesiastical writers respectively flourish: Bede, Anselm, Jewell, Leighton, Pearson, Jeremy Taylor? Give some account of one of them.

3. Enumerate the principal events of ecclesiastical history in the reigns of the Stuart princes.

SECTION V.—1. Name the most distinguished Christian writers of the first two centuries, and give some account of one of them.

2. What heretics denied the true humanity of our Lord?

3. Give some account of Augustine, Athanasius, or Gregory the Great.

4. Does our Church recognise the authority of any general councils; If so, of which, and on what grounds?

ON SCHOOL MANAGEMENT.

SECTION I.—1. Write an essay on one of these subjects.

2. The formation of moral habits in young girls.

3. The peculiar difficulties of training pupil teachers.

SECTION II.—1. What time in each week should be given to the following subjects in a school of girls between seven and twelve years old;—

2. Grammar; English History; Writing from dictation, Arithmetic; Sewing.

3. State also the best method of teaching each of these subjects.

SECTION III.—What apparatus and furniture are required for such a school, (containing ninety scholars). State exactly what use should be made of parallel desks, and of the black board.

SECTION IV.—What branches of domestic economy can be taught theoretically in all girls' schools? What manual or book of reference would you recommend to your pupil teachers on this subject?

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 102.—*Proposed by Mr. Abbott, Twickenham.*

If 3lb. of tea be worth 7lb. of coffee, and 12lb. of coffee worth 30lb. of sugar, what quantity of sugar may be had for a chest of tea weighing 50lb.?

Answered by Mr. Bolton, Mr. Sothern, Mr. Levy, Mr. J. Scott, Mr. J. Lowres, and Mr. J. Salter.

12lb. coffee = 30 lb. sugar,

∴ 7lb. coffee = $\frac{7}{12}$ of 30lb. sugar.

But by the question, 7lb. of coffee are worth 3lb. of tea;

∴ 3lb. tea = $\frac{7}{12}$ of 30lb. sugar;

∴ 50lb. tea = $\frac{50}{3}$ of $\frac{7}{12}$ of 30lb. sugar

= $291\frac{2}{3}$lb. sugar.

QUES. 103.—*Proposed by H. M. I.*

If the modulus of a hydraulic ram be ·87, the water spent 18 gallons per minute, the fall of the water 14 feet; to what height will it raise a cubic foot of water in 80 seconds?

Answered by Mr. J. Herbert, Mr. Turner, A.M., Mr. G. Barnacle, and Mr. Horsman.

Weight water spent per min. = 18 × 10 = 180lbs.;

$$\therefore \text{ Work applied per min.} = 180 \times 14 = 2520;$$

$$\therefore \text{ Work done per min.} = 2520 \times {\cdot}87;$$

$$\therefore \text{ Work done in 80 sec.} = \frac{2520 \times {\cdot}87 \times 80}{60}.$$

$$\text{Work in raising 1 c. ft. of water 1 foot} = 62{\cdot}5 \times 1;$$

$$\therefore \text{ Height in feet} = \frac{2520 \times {\cdot}87 \times 80}{60} \div 62{\cdot}5 \times 1$$

$$= 46{\cdot}771 \text{ feet.}$$

Ques. 104.—*Proposed by Tom Tomkins.*

Required an expression for the side of an equilateral triangle inscribed in a given parabola.

Answered by ***Mr. Sheppard, Mr. Righton,*** *and* ***Mr. D. O'Sullivan.***

Let x = the height of the equilateral triangle, and $2\,y$ = each of its sides; then

$$x^2 = (2\,y)^2 - y^2 = 3\,y^2,$$

$$\therefore\ x = y\sqrt{3}.$$

Now x will be an abscissa, and y an ordinate of the parabola; hence we have from the equation to the parabola,

$$y^2 = 4\,a\,x,$$

and by substitution,

$$y^2 = 4\,a \times y\sqrt{3},\ \therefore\ y = 4\,a\sqrt{3}.$$

LIST OF MATHEMATICAL ANSWERS.

J. Sheppard, ans. 102, 103, 104; J. Reed, Brendon, Cornwall, ans. 102,103; D. O'Sullivan, Fox-street Preston, ans. 102, 103, 104; Thomas Sôthern, Burton-wood, ans. 102, 103; W. H. Levy, Shelbourne, ans. 192, 103, 104; J. Salter, Durham, ans. 102, 103, 104; J. Herbert, Woolton, ans. 102, 103; W. Righton, ans. 102, 103, 104; A. M., ans. 102, 103, 104; J. Bolton, Old Malton, ans. 102, 103; G. Turner, Queen's Head, ans. 102, 103; G. Barnacle, Empingham, ans. 102, 103; J. Scott, Low Moor, ans. 102, 103; E. Carther, Roehampton, ans. 102, 103; W. Davies, Coniston Cold, ans. 102, 103; T. Horsman, Chelsea, ans. 102; A Buglass, S. Shields, ans. 102; Kerslake, ans. 102, 104; J. Rowlatt, ans. 102, 103; J. B. Bayley, Uttoxeter, ans. 102, 103; J. Fox, Burton-on-Trent, ans. 102, 103; W. E., ans. 102, 103; J. R. Prowse, Yeovil, ans. 102, 103; S. Dyer, ans. 102, 103, 104; W. Bower, Bridgenorth, ans. 102, 103; J. Lowres, ans. 102; G. Morris, Gosport, ans. 102, 103; E. Napier, Yeovil, ans. 102; W. Wakely, Marlborough, ans. 102, 103; C. H. Kennion, Farmouth, ans. 102, 103; Regulus, Bradford, ans. 102; T. Dungate, Iglitham, ans. 102.

NEW QUESTIONS,

To be answered in our Number for September, 1851.

Ques. 105.—*Proposed by Mr. W. H. Levy.*

A and B can do a piece of work in 14 days, and B and C in 15 days: in what time can A and C do it, allowing that A can do 1¼ time the work of B?

QUES. 106.—*Proposed by Mr. J. Reed.*

A gentleman dying, left a circular estate of 1000 acres, to be divided among his four sons, four daughters, and widow, in the following manner:—The four sons were to have as much as should be contained in four equal circles as large as could be described (without cutting each other) within the largest circle; the four daughters were to have the four equal pieces remaining between the smaller circles and the larger, and the widow the centre part between the four sons. Required the number of acres each son, each daughter, and widow possessed?

NOTICE TO CORRESPONDENTS.—We should be glad if our correspondents would favour us with a greater choice of new questions.

Intelligence.

EDUCATION IN NEW ZEALAND.—The Lord Bishop of New Zealand and the Bishop Designate of Lyttelton, in concert with the other resident clergy, were most anxiously engaged during his lordship's stay at the settlement, in consulting for the future well-being of the new diocese, considered especially in its relation to the rest of the province of Australasia.

It was impossible to do more at present than to make temporary provision for the due supply of religious ordinances to the inhabitants of the Canterbury settlement, and for such educational institutions as the pecuniary means at present at the disposal of the agent of the Canterbury Association would admit.

It was determined to commence an elementary and commercial school at Christchurch as soon as possible, for both boys and girls. The want of such an institution begins to be greatly felt on the plains.

It will probably be felt as a disappointment by some persons, that the senior department of the college cannot at once be commenced at Christchurch, or at some place in the neighbourhood of the future capital. This was found to be impossible; first, for want for want of the necessary accommodation (a want which is temporarily supplied at Lyttelton, by the simple adaptation of a portion of the Emigration Barracks); and secondly, because there are no funds available for the erection of proper buildings.

As soon as the Bishop Designate reaches England, his best and persevering efforts will be applied to the collection of funds for this great purpose. Meanwhile, Mr. Cridland has prepared a series of designs, embodying the economical principles and arrangements for discipline, which were contemplated in the drawings brought by the Bishop Designate from London. Mr. Cridland's designs are, in other respects, adapted to the building materials available in the colony. The Bishop Designate entertains, we believe, the confident hope that he will be able to send from England, by monthly instalments, a sum sufficient to erect all the parts of the college necessary for the full and efficient working of its discipline and scheme of general instruction, should the funds of the Canterbury Association derived from land sales be found insufficient for that object, after providing for liabilities already incurred. Meanwhile, the upper department opens at Lyttelton with four pupils, and with the immediate prospect of several additions from the other settlements of New Zealand. Assuming that the college buildings are commenced out of the first funds derived from the above sources, and are ready for occupation by the time the Bishop Designate returns to the colony; and that the estates attached to the scholarships, for which he has already procured funds in England, are at that time sufficiently productive, he proposes to hold examinations in the Greek and Latin languages, and in mathematics; at which, as we are informed, any person being a member of the Church of England, and whose age does not exceed twenty-one years, may compete. The successful candidate will immediately enter upon the enjoyment of any emoluments which may be derived from the foundations referred to.

The following are the foundations at present:—1. The Somes Scholarship. In the examination for this scholarship a preference will be given to the next-of-kin of the founder, Mrs. Maria Somes. It is endowed with fifty acres of rural land, and one quarter of an acre section in the Port town of Lyttelton.

2. The Rowley Scholarship, of fifty rural acres, and one town section at Christchurch.

3. The Charles Buller Scholarship; endowed with one hundred acres of rural land, and two town sections at Christchurch.

4. The Hulsean Chichele Professorship of History, at present vacant. There is reason to hope that a gentleman in England distinguished for his talents and learning may be persuaded to accept it. Meanwhile, the Bishop Designate, acting upon the expressed wishes of the munificent founder (Edward Hulse, Esq. M. A., Fellow of All Souls College, Oxford), that the attention of the Professor should be called, in the terms of the trust deed, to the Reformation, and the period immediately preceding it, proposes to present a prize of books, to the value of not less than five guineas, to the author of an English Historical Essay, founded on the following passage, selected from the Colloquies of Erasmus:—

"Exulat Christianus Danorum rex, pius Evangelii fautor: Franciscus Galliarum rex hospes est Hispaniarum, nescio quam ex ipsius animi sententia, vir certe dignus meliore fortuna: Carolus molitur monarchiæ proferre pomœria: Ferdinandus rerum suarum satagit in Germania: balimia pecuniarum urget aulas omnes: periculosos motus coercitant agricolæ, nec tot stragibus ab instituto deterrentur; populus meditatur anarchiam; periculosis factionibus collabitur ecclesiæ domus: hinc atque hinc distrahitur illa Jesu tunica inconsultis."—*Erasmi Colloquia.*

The Bishop Designate also offers to the students of the college, two prizes of books, to the value of five guineas each, for the best two poems, one in English and one in Latin, on the voyage of the five ships, containing founders of the Canterbury settlement, and on the foundation of the colony itself; these poems to be recited at the opening of the college.—*Lyttelton Guardian.*

Industrial Training Institution.—The foundation stone of a new Industrial Training Institution, for the counties of Essex and Hertford, has just been laid at Hockerhill. The object of the founders of these schools is, the more effectual training of young women for the offices of teachers and housewives. The amount of money required to give practical efficiency to the institution is estimated at £9000, towards which sum £7500 have been already collected—including £300 from Government, and £600 from the National Society.

Battersea Training Institution.—The Rev. Robert Graves, for some years Mathematical Tutor of St. Mark's College, has been promoted to the office of Vice-principal of the Battersea Training Institution. C. F. Eastburn, Esq., B. A., sixth wrangler of St. John's College, is appointed to the office vacated by the Rev. R. Graves.

To Correspondents.

A Schoolmaster is informed that the Selections he alludes to were not continued.

Several communications received too late for insertion this month will appear in our next.

ON LATIN ETYMOLOGY.

No. XIII.

When two changes in the form of a root happen to coincide, there is a fair excuse for those who fail to recognise the substantial identity of the two varieties. Thus it would not be an easy problem to find out the Latin word that represents the Greek *χων-νυμι*. The base of this word we should prefer to write *χον-* rather than *χων-*. The presence of the *ω* we believe to signify that the first of the two liquids was not pronounced. It was no uncommon thing in both Greek and Latin to suppress an *n* after a vowel *o*. Thus *convention-* was softened into *cōvention-* before it was compressed into *contion-* (*n. contio*) "an assembly." So the Roman words *consul,* and *Constantinus* were pronounced with a long *o* and the *n* altogether silent. Hence the Romans abbreviated the former by the letters *cos.*, and the Greeks wrote the other Κωνσταντινος or Κωσταντινος, just as they also wrote Κηνσωρ or Κησωρ for *censor*. It was in this way probably that the Romans wrote the Greek names Ξενοφων, Στραβων without a final *ν*, Xenopho, Strabo. That the *ν* was not pronounced with much care in the base of *χωννυμι* is proved by the derivatives *χοος χωσις χωμα*. In discussing the question under what form *χον* may be expected to appear in the Latin vocabulary, we must first deal with the aspirated guttural. Now we have had not a few examples of pairs of words in which to a Greek aspirate corresponds a Latin medial, as *ονυξ* and *unguis*, *ομφαλος* and *umbilicus*, *νεφος νεφελη*, and *nubes*, *λεχος*, 'a bed,' and *lingere*, "to lay or spread out," whence the compound *pollingere*. Thus we are invited to look out for some word beginning with a *g*, and perhaps ending in an *r*, as the representative of the base *χον* of *χωννυμι*. Again, as a Latin short vowel before an *r* commonly takes the form of an *e*, we arrive at a hypothetical base *ger-*. Now the Latin actually possesses this verb with the very sense we should desire, but it happens to be found only in compounds; and must carefully be distinguished from that other verb *gero*, which signified, as we have already said, "to carry habitually," "to wear," and in fact corresponds in sense to the Greek *φορεω*. It is true that all our lexicons deduce from this verb *gerere*, "to carry," the compounds *ingerere, congerere, egerere, suggerere, regerere,* and are most unduly biassed in their translation of these compounded verbs by the erroneous origin they give to them. Thus even Forcellini for the first meaning makes *ingero= intro gero,* and Mr. Riddle "to carry into." So *egero* is said to be *= extra gero,* "to carry out;" and *regero = retro gero,* "bear or carry back." Now we believe that the notion of shovelling or moving in successive masses is the only notion to be found in every one of these compounds. Thus *egerere* means nothing but "shovel out," "shovel up," or if speaking of water, "bale out," "empty out in buckets," as *egere fluctus* (*e navi*) *Ov*. *Ingerere* likewise is used of emptying buckets, &c. of water into a vessel, and indeed the very passage first quoted by Forcellini in justification of his alleged equivalent phrases *intro gero, infero, importo,* has the sense we speak of: viz.

Plaut. Pseud. i. 2. 24, "Tu qui urnam habes, aquam ingere, face plenum ahenum sit cito." More commonly *ingerere* is "to heap upon," especially in the sense of "heaping abuse upon a person," *e. convicia.* This metaphor no doubt arose from the practical proceeding of "heaping dirt or dirty water upon a person," and thus we are prepared for the return in kind, the retort, expressed in *regerere convicia.* But if Forcellini has made mistakes in dealing with these compounds, these mistakes are as nothing compared to the mass of error accumulated by Lünemann under *regero,* and with all care reproduced in Mr. Riddle's book. We have room for but two specimens. Under the first division, and third subsection, for there is no little pretension to accuracy and completeness, we find: "to let boil away (verkochen lassen) Varr." The passage referred to is in the De Re Rust., i. 64, a passage corrupt in many ways. Gesner first proposes to alter *duas partes quoad regerunt* into *ad duas partes quoad redegerunt*; but subsequently defends the existing text, and attributes to *regerunt* a sense which it can in no wise bear; viz. *igne expellunt.* For this unwarrantable supposition he refers us to a note of Scaliger's on R. R. ii., 2, 18, where that learned critic has the courage to invent a compound *rēgere* from *re* and *agere,* on the model of *dēgere.* The present of Scaliger's imaginary verb would of course be *rēgo,* and this forsooth is a justification for assigning to *regero* the sense of "to let boil away." We have thought it right to give this detail because it is a fair specimen of the authority upon which not a few strange meanings are foisted into our lexicons. The other extraordinary translation stands in the second division, first sub-section—" Fig. *to enter,* in commentarios, Quint."—The passage is quoted at length in Forcellini, from lib. ii. c. 11, where Quintilian is talking of youngsters who shovel into the recesses of their note books for future use whole passages of declamatory rubbish that they hear applauded.

But we return to our view that *gerere,* as seen in the compounds *egerere,* &c., means always "to shovel, heap, pour in large and successive quantities;" and that it has no connection whatever with the verb *gerere,* "to wear." We believe also that it is the equivalent in form of χον- the base of χωννυμι, &c., but whether this connection be true or not, the importance of the doctrine as to the meaning of *egerere,* &c., is not diminished.*

But perhaps the best evidence of the real power of the compounds of *ger-* may be found in an examination of the passages quoted by Forcellini himself, in spite of the bias in his mind arising from the belief that *ger-,* ' carry,' is the parent of the whole family. The two ideas of "shovelling," or, as we say, "shooting (earth, rubbish, &c.)" and "baling out (water)," stand out in the most marked manner in the quotations of that writer. Thus, under *agger-* we find examples with the following accusatives: *luta et limum,* Cic.; *tellurem,* Virg.; *terram,*

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* We have not included in our paper the word *carmen,* which *primâ facie* seems to be a modification of *canimen,* from *can-* "sing." This word is thought, and not without some show of reason, to be formed from an obsolete verb *car-*, "make," whence, probably, *creare* and *crescere.* The Sanscrit has the verb *kri* "make." The derivation of ποιητης from ποιεω, would justify this derivation of *carmen,* so far as regards meaning.

Plin.; *humum*, Mart. Under *conger-*, *humum*, Suet.; *aggerem*, Caes.; *quod idoneum ad muniendum putant*, Nep.; *laticem*, Lucr. Under *eger-*, *humum*, Ov. and Curt.; *limum*, Curt.; *saxa*, Plin.; *aquam*, Curt.; *fluctus*, Ov.; *sanguinem*, Plin. Under *inger-*, *humum*, Ov.; *fimum*, Plin.; *stercus*, Colum.; *saxa*, Liv.; *lapides*, Plin.; *aquam*, Plaut. and Plin. Under *reger-*, *tellurem*, Ov.; *humum*, Colum.; *lapides*, Plin. Under *sugger-*, *humum*, Prop.

Another word which has a similar termination with *ger-*, and which, like it, has undergone a change of the final consonant, so as to conceal its connection with related words, is *quer-* of *queror*. The very meaning of this verb, "to complain," is such as to assure us that the original idea is yet to be found. In search of this we cannot do better than take for our guide two verbs of similar meaning, *κοπτομαι* and *plangor*. These we know derive their secondary sense of "bewailing" from the physical idea of "beating oneself." They are both middle, or rather reflective verbs. The former is always so considered; but, unfortunately, Latin scholars have combined to ignore the existence of middle verbs in that language, although they are in fact as abundant in it as in its Eastern sister. How foolish was it in Forcellini to prefix the adverb *passive* to his quotation of such passages as *scissæque capillos, Planguntur matres Calydonides*, Ov. Met. viii. 526; *Dumque volunt plangi*, Met. v. 675. The very verb *volunt*, in the latter passage, should alone have checked him in the error. The passage from a middle verb *plangi* to the form *planxere* for *planxere se*, Ov. Met. iii. 505, is what was to be expected in a language where Cæsar, for example, uses the reflective form in all the imperfect tenses, *revertitur*, *revertebatur*, *revertatur*, *reverteretur*, *reverti*, but in the perfect tenses prefers *revertit*, *revertererat*, *reverterit*, *revertisset*, *revertisse*, no doubt because the perfect tenses of the middle voice can only be expressed by what our French grammars call compound tenses.

The question then having been suggested whether *queror* meant originally, "I beat myself," we have at any rate the satisfaction to see that such a meaning is in harmony with its reflective form; and we proceed next in search of some allied word wherein the notion of "beating" is apparent. In this search we come across *quat-ere* and its compound *percut-ere*. The simple verb *quatere* seems to be divided between the two ideas of "to strike" and "to shake," and we naturally give the preference to the first of these two notions, as that of "shaking" so easily flows from the other. The chief difficulty of the problem lies in the change of the letters *r* and *t*, for the preference in Latin of an *e* before an *r* need not be again considered. Now the Greek language abounds in examples of the change between the two consonants under consideration, as *ἡπαρ ἡπατ-ος*, *στεαρ*, *στεατ-ος*, *ἡμαρ ἡματ-ος*, *ὑδωρ ὑδατ-ος*, *σκωρ* and *σκερ-* (of *σκερ-βολος**) *σκατ-ος*. Again in a comparison of words belonging to the German language and our own, we find *war-ein*, *where-in*, alongside of the simple relative, *was* and *what*; *dar-ein*, *there-in*, alongside of *das* and *that*.

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* That *σκερ-βολος* meant literally "dung or dirt-thrower," has long been pointed out. In a new edition of Messrs. Liddell and Scott's Dictionary it may be substituted, we will hope, for the derivation from *κεαρ* or *ες κεαρ βαλλειν*, an etymology which those scholars evidently distrust, though they give it.

Even in Latin we find *d* and *r* alternating with each other. Thus no one will hesitate to treat as closely-related words *auri-* "ear," and *audi-* "hear," &c. It has also been unhesitatingly admitted that *caduceo-*, is only a Latin way of writing the Doric *καρυκ-ιο-*, or *-ειο-*, "the herald's wand." But in *instar*, we have a word that has substituted an *r* for a *t*, for this word is immediately formed from the obsolete verb *stat-*, "stand." The existence of this archaic verb for the more common form *sta-*, we assume with Bopp, in his "Comparative Grammar," partly on the authority of the compound adjective, *super-stit-* (ncm. *superstes*), and partly on a comparison with our own verb, *stand*, *stood*, in which the final dental holds a fixed place. Thus *instar* will be the equivalent of our own *in-stead*, and the German *an-statt*, so that the fact of its taking a genitive is at once explained.

But we have further evidence of value in the existence of the adjective *querquero-*, whence *querquera febris* "an ague," a word certainly not familiar to scholars, yet supported by the authority of Plautus and Lucilius, as well as by the later writers Apuleius and Arnobius. The Greek language also has the Homeric verb *καρκαρ-*, "tremble," present tense *καρκαιρ-ω*, and it would seem a sub. *καρκαρο-*, "trembling." The adjective *querquero-* may be regarded in two points of view, first, as a word formed by reduplication. This principle of formation is well known to all in the substantives *mur-mur-*, *tur-tur-*, *su-surro-*, and the verb *tintinna-re*; and if the language of vulgar life had come down to us in its entirety, we should probably have been acquainted with not a few words, such as *butu-bata*, in Naevius, to correspond to our own extensive phalanx of words, like *fiddle-faddle*, *humpty-dumpty*, *zig-zag*, *&c.* But on the other hand one is strongly tempted to class *querquero-* with the large family of adjectives in *ero*, such as *ten-ero-*, *pig-ero-*, *rub-ero-*. If this view be true, we have *querq-* or *querqu-* for the first element, in which, however, the final guttural will be probably only a suffix, as we know to be the case with our own verbs, *talk*, *hark*, *pluck*, from the simple verbs, *tell*, *hear*, *pull*. In these verbs the final *k* or *ck*, there is reason for believing, adds the idea of a diminutive, as is tolerably clear in the instance of *pluck* compared to *pull*. "I, says the bull, because I can pull," are words which imply the possession of great force, whereas we but *pluck* a hair or a flower. But for our present purpose it is a matter of indifference which of the two views about the adjective be preferred. In either case we arrive at a base *quer-*, with the idea of "shaking;" and thus, with the three words before us, viz. *queror*, "I beat myself or complain;" *querquero-*, "shaking;" and *quat-io*, "I beat or shake," we cannot well hesitate about referring them to a common origin.[*]

But we are afraid of occupying more space in the "Journal" with inquiries of this nature; and the examples that have been given in the thirteen papers now completed, will perhaps be found more than sufficient to prove the advantages of a careful induction in Latin Etymology.

Grouville, *Aug.* 16. CLAUDIUS.

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[*] It may be useful to note that in the perfect participles *ques-tus* and *quas-sus* we have an *s* common to the two verbs.

ON CORPORAL PUNISHMENT.

No. III.

An age which shrinks from the idea of coercion would have the acquisition of knowledge made purely pleasant, and to make it pleasant would have it made very easy. The miscellaneous knowledge now in fashion, with all its flattering and deceptive variety, admits of being made easy to an almost unlimited extent. Dabbling with the natural sciences, listening to sermons on pebbles, and lectures on cryptogamous plants in hedge bottoms—this kind of education, if so it may be called, requires little discipline, little of that cogent regulation which is calculated to strengthen the intellect, and restrain it from weak vagaries; but a mind formed on this plan, or anything like this plan, will be feeble, because, from the instructor's dread of coercion, it will rarely be tasked to the extent of its powers; and probably arrogant, because it will never have known difficulty or defeat. In the case of the ancient languages, if really taught, there is far less chance of this trifling; but then, in the acquisition of these, there will be a painful, though by no means profitless *sense of labour*. What Goldsmith * says, is perfectly true:—"Whatever pains a master may take to make the learning of the languages agreeable to his pupil, he may depend upon it, it will be at first extremely unpleasant. The rudiments of every language, therefore, must be given as a task, not as amusement. Attempting to deceive children into instruction of this kind, is only deceiving ourselves." Where these form a main part of the education, a master will find in most instances, if he is at the pains to give his attention to his pupils individually, that he must either encounter resistance or detect evasion. We must beware how we allow ourselves to be misled by exceptions in this matter. Schools there doubtless are, not a few, which have abjured almost every species of severity, and which are still, from time to time, sending forth distinguished men. The professed absence of corporal punishment will often, where other circumstances are favourable, bring numbers, and out of these numbers it would be strange if a clever master could not turn out yearly a sufficient number of young men of ambition and promise, to act as advertisements, and keep the school in good odour. In this way a delusion may be kept up almost indefinitely. Parents are tempted by this fallacious success to send boys to whom the deplogisticated system of discipline is wholly inapplicable; and what is done in these cases by the master, who has bound himself, or is bound by others to this system? What can he do? He tries them for a longer or shorter time, according to his patience or integrity, and if it does not answer, as in many cases answer it will not, he turns from them tacitly, of course, not often professedly, in disgust and despair, to those who will better repay his labour: many a pupil leaves such schools as these a kind of reprobate in his master's eyes, but a conqueror in his own. Parents are as defenceless here, as they are credulous; they take it for granted that their sons are educated, for the cases are comparatively rare in which any subsequent test is applied to prove what has been done. The true proof of a schoolmaster's worth, is to be found in the condition, not of the upper but of the lower half of each of his classes. Quackery and puffery fail here. Arnold hit the mark when he said,* "What we ought to do is, to send up boys who will not be plucked." To make moderate requirements, to insist that no boy shall fall greatly beneath these requirements, to keep his team together, this is a master's duty, this his skill; to deal with the quick-witted and industrious is easy enough, but to make the inattentive and the idle fairly grapple with their work, will often require not only patience but severity.

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* Essay on Education.

Before proceeding we ought not to omit to mention a very common fallacy often used to buttress up the weak cause of a soothing and indulgent system of instruction. We mean a too favourable statement of the capacities and motives of the young for making progress in learning. Prove that a child can learn easily, and that he greatly loves to learn, it is easy to proceed further, and prove that it is unnecessary to make him learn. Now in some respects, as far as capacity and mental condition go, the young may possess some advantages over the more mature; but then each of these is counterbalanced by a corresponding defect. Is the memory at once strong and impressible? it is also undiscriminating: is the attention eager and easily attracted? for the same reason it is diverted no less easily. Are the perceptions quick? they generally want steadiness and accuracy. If the boy has no discouraging sense of the boundlessness of knowledge, it is because he does not see it in its connections. If he is free from that sickening and delusive feeling of its uselessness which often, for a time, almost paralyses the man, it is because he rarely views knowledge with an eye to its utility. It is for discipline to separate the advantages from the attendant evils. Then for the motives. Let a practical schoolmaster think over his fifty or sixty boys, and assign sincerely to each the motive by which he believes him to be influenced. A sense of duty, with love of parents and masters, and a wish to please them; a desire to acquire knowledge for its own sake; a love of distinction and preeminence; are a third part of the entire number thus influenced? scarcely; and the rest by the dread of impending danger of some kind; which last indeed is often required as subsidiary to the others, when the sense of duty becomes languid, as it often does in the best and wisest of us; when the desire of excellence is wavering and doubting whether the best field for its display is the class-room or the cricket-ground; when the desire of knowledge is burning to indulge itself with "Tales of other Lands," or bent on making progress in the mere mechanical arts of rigging a cutter, or, alas! of spinning a cockchafer. This ought not to appear an unfair estimate of the motives of the young. Surely we are not to expect from them, with their natural volatility and waywardness, what, in point of fact, we do not find in their seniors. Though the mind of the nation may be fairly said to be awake, though readers and books are numerous, and the importance of knowledge is highly appreciated; still, take the mass of the middle classes the country through, deduct the mere newspaper and novel-readers, and those who study their trades or professions from compulsion, and for a livelihood, and those who employ their leisure in anything like serious or regular study with a high object or lofty motive of any kind will be found to be comparatively few. When therefore a master boasts of scholars who are actuated by none other than noble impulses, we may shrewdly suspect him of accommodating his statements and his arguments to his practice in matters of discipline.

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* Life and Correspondence, vol. i., p. 132.

That men in earnest about their profession endeavour to obviate the evil effects of a lax code of discipline, we do not deny. Some of those who are committed to a lenient system sincerely regret that they are thus restricted. A gentleman at the head of one of our most important places of public instruction, where corporal punishment is prohibited, after many years' experience there, told us, that, though he had accommodated his management as far as possible to the prescribed system, he considered the absolute prohibition of corporal punishment to be a decided evil. Some even zealous instructors who have professed to set aside the rod and cane in education, have recourse in extreme cases (to the great damage of their theory) to violent shakings, pushings, lugging the hair, and other irregular inflictions. This was the case with a late master of an important public school in London—a man zealous, if ever man was, about the success of his school, and the progress of his pupils; the experienced have told us that his hand was of such capacity that he could box both ears at once: under his determined energy his system fairly broke down. Some, again, who do not choose to give themselves the pain of this kind of punishment, and who feel at the same time that they can do little good without it, either dismiss the worthless altogether, or reconcile it with their principles to take no pains with those boys who will take no pains for themselves. The conscientiousness of thus giving up bad cases, is, we think, very questionable, unless it can be proved, which it certainly never has been, that the infliction of corporal punishment is decidedly wrong. A good physician does not decline a difficult case, and a man is not fit to be a schoolmaster who refuses to cope with one. The scapegraces must go somewhere from the man who is too delicate to deal with any but good and clever boys.

Others again, will endeavour by endless repetitions, explanations, and expostulations, to remedy idleness, obstinacy, and inattention: this is all very well supposing it to be the first, second, and third duty of a schoolmaster to avoid corporal correction, otherwise not. Where numbers are to be educated, a man *has only a right to bestow* a limited portion of time on each pupil; and he is not justified in devoting any very large share of his time to those cases in which a more decided exercise of authority would be more quickly efficacious. Some masters seem to think nothing of the expenditure of time in scolding, talking, re-explaining to those whose inattention makes a first and second explanation insufficient. Half the hour which ought to be devoted to honest straightforward work with an entire class, is thus often laid out in assisting or rebuking the idlest boys in it, or in hearing the same lesson over and over again, which the pupils, if compelled, might have learnt perfectly at first.

Few masters are so hardy as to assert that they can dispense with punishment entirely, and the favourite modern punishment is the "imposition." Dr. Abercrombie * observes, in language somewhat stronger than we should permit ourselves to use, "The practice of setting tasks as punishments cannot be alluded to in terms adequate to its extreme absurdity."

In some few cases, and occasionally, the imposition may be preferable, but generally in the instance of senior boys we think not, for the following reasons. In the first place, these impositions are either exercises of intellect, or memory, or mere mechanical work; which ever they are, they almost invariably take up the time which ought to be left free and open for the preparation of the next regular lesson, thereby inducing very often the necessity for another imposition for the next day, and so on. Again, if the imposition is one which requires thought or memory, it is probable that as much resistance may be offered in this case as to the lesson originally set, and then what is your resource? or, if this opposition is not offered, is it your duty, as a schoolmaster to allow your pupil to make his election of the subjects on which he will, or will not, exercise his intellect, if you were quite sure, (as you ought to have been before you set it,) that the first lesson was quite within his capacity? But this is not often the case. What boys struggle against is the trouble of mental exertion. In nine cases out of ten, especially when the process has become familiar to them, they would rather devote three hours to the mechanical labour of scribbling than one to patient thought, and during the whole of the time thus occupied, the play hours which ought to be giving freshness and spirit for the next day's work are being cruelly and irrationally consumed. The boy plods on indeed, industriously spoiling his handwriting without acute pain, but with a prolonged dull sense of the oppression of his master, and a rapidly accumulating dislike of him, unless he can coax or compel some unfortunate junior boy who can imitate his handwriting, and thus stultify the punishment altogether. Besides, when pupils are numerous, has a master, however industrious he may be, however willing to submit to any drudgery which parents would exact from him rather than that their children should be exposed to any bodily suffering—has a master, we say, actually time properly to examine these impositions, when they are done? He will tell you, if he is candid, that it is frequently impossible.

Confinement and restriction from play are open to the principal objections which we have already made to impositions, and make it at least highly probable that the next lesson will be done still more indifferently than the last. The censure of a master who has great moral influence over his boys, may occasionally produce considerable effect, but even this will for the most part lose its poignancy, when they have once discovered that beyond censure the master will not go; we have known boys even calculate on the time which a long address would deduct from the lesson. Let it be observed that we do not say that these several modes of correction may not be profitably used in certain cases as substitutes for corporal chastisement; and sometimes

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* Inquiries concerning the Intellectual Powers.

interchangeably with it. There are very few dicta on the subject of education, which are to be taken absolutely, and without exception; but on the whole, we think that moderate corporal punishment is more impressive, more calculated speedily to assert a master's authority, and at the same time, in reality, more merciful than most of the punishments used in its stead.

Now with regard to the legitimacy of corporal chastisement. Some of its opponents talk loftily of prerogatives, and altogether deny that it is a due mode of influencing rational beings. Such an opponent we might question thus: This son, or pupil of yours, has not done, and in effect declines to do, what you bid him; you will not whip him, because he is a rational being; what will you do with him? Why send him to bed without his supper, to be sure. Then is it actually your intention, metaphysician as you are, to deprive him of that portion of bread and butter which you have hitherto considered necessary to complete his natural daily sustenance? You will pinch his appetite, will you? Do you not know that prior to his prerogatives as a rational being, come his claims, his common dues, as an animal, which from you, of all others, he has a right to demand? Well, certainly a boy may be defined a rational animal, and possibly you are right. Let him have three hours by himself in the garret. Infatuated man! and most imperfect metaphysician! is it possible that we hear you aright? Are you not aware that, in right of his rationality, that child is also a social being, and that you are debarring him from contributing his innocent quotum to that community of which he forms a part? Well then, he must write out his column of spelling half-a-dozen times, as he refuses to learn it once. What! change the image of his Maker into a mere copying machine? We see you are embarrassed, and we would willingly relieve you from this embarrassment by simply asking you on what authority it is that you assert that corporal punishment is not adapted to a rational being? Corporal punishment not applicable to rational beings! then, oh most foolish father, must we exclude thee from the class, inasmuch as by the decree of the very sovereign reason it is probable that thou art now suffering castigation, corporal castigation too, for some fault of thy youth. What mean the *fervidi ictus* of that inflamed great toe? or, if the shoe pinches not there, is there no thistle (certainly not a *carduus benedictus*) which, donkey-like, thou has swallowed smoothly in thy youth, and which is now returning upon thy palate, with its prickles fiercely reversed. Thee, after a long and mature deliberation—thee, the creature of a most intellectual century, thyself of the mature and dogmatical age of fifty, is nature most severely and distinctly whipping for faults which thou hadst wellnigh forgotten; and that, in the way to others, possibly, of admonition, to thyself simply of penalty. This is no joking; it is real argument, as thou wilt find if thou askest thyself these questions:—Am I a rational being? Is this real bodily pain? Is it administered in consequence of any fault of mine? Who administers it? Struggle against the conclusion as you please, this is the order of the universe. If it appears a foolish ordinance settle the question elsewhere; the dispute is no longer with us, only desist from talking of thy prerogatives as a rational being;

the same hand which gave thee thy rationality, is administering thy punishment.

We are speaking of the question generally, not attempting to define the limits within which human authority may imitate a superior dispensation, though the punishments administered by a wise man, or a wise government, might probably more commend themselves to human shortsightedness, as equitable, and improving to the individual immediately concerned, than the often mysterious dealings of Providence. Many teachers, it must be admitted, are unfortunately very unfit to stand in the place of Providence to children; but it is the duty of parents (a paramount duty which they often neglect to a degree to which they would not show negligence in any other matter in which they were equally interested), to be most careful in their selection of masters, and to send their children only to those men on whose temper and disposition, as well as acquirements, they have some guarantee that they may depend. All masters who use corporal chastisements, are not those frenzied savages, by describing whom Mr. Dickens has succeeded in exciting so much maternal and sisterly sympathy. Many a man of honour, wisdom, and humanity, with a character to lose, has not shrunk from administering corporal castigation when he has thought it would be beneficial.

ON METHODS OF TEACHING.

It is a common remark among the educational writers of Germany and Switzerland that an acquaintance with methods of teaching has been cultivated by the schoolmasters of those countries to a much greater extent than a knowledge of the principles of real education. If this can be said of the German and Swiss schoolmasters, who have devoted more attention to the study of education as a science than those of any other nation, we shall not be surprised to find that the remark applies with still greater force to the new race of teachers, by whom so great an improvement has of late years been effected in the state of the elementary schools of this country. It is true, and none will more readily bear testimony to it than ourselves, that this improvement is in great measure attributable to the employment of the several continental methods of teaching which were introduced into this country under the sanction of the Committee of Council on Education: indeed we may go so far as to say, that we should be much gratified to observe, on the part of teachers, a better appreciation of the assistance afforded them by these methods in the discharge of their duties, and, on the part of all interested in education, a greater disposition to acknowledge the influence they have had towards rendering elementary instruction more rational and consequently more effective. At the same time, we are strongly of opinion that the value of mere methods of teaching has been very much overrated, and that the attention of English schoolmasters has been too exclusively directed to the study of method, to the neglect of more important matters.

We will proceed to exemplify our first assertion in regard to the several methods above alluded to; the second we must leave for a future occasion. After what has been said, we do not fear that our remarks will be understood to be condemnatory of the methods themselves, but of the abuses which have arisen out of them, and which have had the effect of retarding their introduction into our schools.

The aim of the Pestalozzian Arithmetic is to lead children to observe for themselves the properties and relations of numbers, as shown upon the various tables made use of. If the spirit of the method is realized by the master, nothing can be more important than the influence which it has upon his instruction in this subject. It teaches him to base all his explanations upon first principles, instead of condemning his pupils to work from prescribed rules, of which they do not understand the reasons. He thus gives them the power of deducing arithmetical results for themselves, and scope for the exercise of their judgment as well as of their memory. Treated in this common-sense manner, arithmetic is invaluable as a mental discipline; and, from being a dry task, it is rendered an interesting exercise to the children, for the child is always gratified by any instruction that appeals to its reasoning powers. But what shall we say of the manner in which many of our schoolmasters teach the Pestalozzian Arithmetic? We have frequently heard boys made to go through whole lines of the exercises under the care of a monitor or pupil-teacher, until the repetition has become one monotonous sing-song not requiring the slightest thought. Is this the way in which Pestalozzi intended his method to be employed? Does it not rather entirely counteract the end which he had in view, and make the remedy worse than the disease? There was some utility in teaching boys to work by rules, for this did impart a certain amount of skill and rapidity in accounts; but Pestalozzian Arithmetic, in the hands of these teachers, degenerates into the merest and most unprofitable routine.

Of all the new methods, Mulhäuser's Writing is perhaps the one that has been most extensively introduced into our schools, and, at the same time, it is the one that has most strikingly failed. We may go into plenty of schools, and find that black-boards have been ruled for teaching Mulhäuser, but that they are now never used for that purpose. It is undoubtedly a most effective method of teaching beginners the elements of the letters and large-hand writing, and it thus lays the foundation for the acquirement of a good small-hand; but to attempt to teach small-hand itself by this method is unwise, for the component parts of the letters are too minute to be put together piecemeal without disfiguring the writing and impeding the pen. Accordingly, the most that has been done in this way is to impart a slow cramped hand, which, like other evils, when once acquired, is not easily got rid of. In the German-Swiss Cantons, where the method was in use long before Mulhäuser introduced it into the Canton of Geneva, it is never applied to this purpose, although far better suited to the German small-hand, which consists chiefly of angular letters (this is not the case with the large-hand, as the opponents of the method have asserted) than to the English or Italian. The English have long been famous for the beauty and rapidity of their penmanship, and we believe that they will still continue to retain their superiority, because this excellency is chiefly observable in the class of mercantile clerks and tradesmen, and the only thing that is really well taught, or, at any rate, well learnt, in our middle or commercial schools, is writing, so indispensably necessary to those who attend them, and therefore so strictly required by the parents. But in attempting to afford facilities in our elementary schools for the acquirement of similar skill, we have entirely failed in our object, and, so far from giving our scholars a chance of attaining to an equality in this respect with the children of the middle classes, we have not even brought them to a level with those who preceded them in their own schools, as may be observed by looking at any of the old copy-books. We trust that teachers who have not yet had much experience in teaching the method will not persist in carrying it to excess. It should be sparingly employed, and for the lower classes only. For these, however, it is exceedingly valuable, as it tends to cultivate the perceptive faculties of the children. It is not to be regretted that the method is inapplicable to the rest of the school, for a useful and agreeable exercise is afforded to the pupil-teachers by their having to set the copies. Besides, it is a pleasure to the children to have some good writing in their books, and they make more progress in this way, because they are not disturbed by having to look off at models, and because they have more courage to attempt to imitate the copy they see actually written by their teacher, than one which they know can only be executed by an engraver of unusual excellence.

The intention of the Committee of Council in causing Wilhem's Method of Teaching Singing to be adapted to English use, was to make it available for our elementary schools; but after the lapse of ten years, the number of these schools in which it is taught is still very limited, while its use is almost entirely confined to classes of adults. It is true that this partly proceeds from the inability of school-masters to teach the method, but we think that the chief cause of its having thus been diverted from its more immediate object, is the too rigid manner in which many have attempted to carry it out. The exercises on the intervals are so dry and uninteresting, that children have not patience to go regularly through the whole course of them, and, before they have got to the end of the first part, their dislike often becomes so evident, that it is found advisable to give the method up. This result is best avoided by making the teaching of the method alternate with the singing of school-songs, for instance by taking the method during the first half-hour, and songs during the second. It is desirable, however, that the children should always be supplied with copies of the music which they sing, in order that they may learn, from the first, to connect the sounds with the notes. If taught on this plan, not only will the children take much more interest in the singing lessons, but their taste and memory will be cultivated, and, on this account, they will make more rapid progress in learning to sing at sight. It is a great mistake to suppose that the latter is so entirely the object to be attained, that the singing of any music, but just what is contained in the method, should be deferred until the children are able to learn it from the notes, and that they should be studiously kept away from any musical instrument, for fear they might learn anything by ear. Not the least important aim in teaching children to sing, is to make them happy and cheerful, and this is best done by letting them sing music which they are fond of:—it does not appear to matter much how they learn it, so long as they learn it correctly. To prevent them from singing a song, because they are not able to decipher the characters in which it is written, is not a bit better than it would be to forbid a child to repeat poetry because it cannot read. In fact, it is just as necessary to train the ear first in teaching a child to sing, as in teaching it to talk; and, of course, to hinder it from doing either, because it does it imperfectly, is simply absurd.*

It is quite astonishing that the Model Drawing after the Method of Dupuis, has not been more extensively introduced into our schools, so useful as a knowledge of drawing is on all hands acknowledged to be to the children of the labouring classes, especially in manufacturing districts. This certainly does not arise from any defect in the method itself, for to draw from actual objects is the only sure way of acquiring skill in practical drawing. It appears rather to result from the mistaken idea, on the part of teachers, that the principles of the method are inseparable from Dupuis' actual models, and that to teach the method rightly it is absolutely indispensable to have these. The model drawing is thus made a most expensive study, and we cannot be surprised if managers refuse, on this account, to have it taught in their schools. But it is hard to understand how teachers can imagine that any special virtue resides in the particular models constructed by Dupuis. They are certainly very light and nicely painted; but we cannot see why a common carpenter should not make blocks of deal in all the elementary solid forms, which would answer every purpose quite as well as these, for one-twentieth part of the expense, or why the teachers should not themselves make them with a little cardboard and paste. Models of both these kinds are used in all the Swiss schools, and they each have a stock of wooden bricks for setting up compound forms. Besides these, the various objects in the school-room will always furnish a ready-made stock of models; so that, even if the deal models are unattainable, the method may still be successfully taught. There is no reason either why common black-lead pencils should not be used in schools where the porte-crayons and prepared chalk would be thought too expensive. In fact, we are disposed to recommend the practice of pencil-drawing in all cases as preparatory to the other, in order that the children may learn to draw a *good line*, which is unattainable with the crayon. For this purpose, too, we see no objection to allowing the children occasionally to draw from copies, so long as this is kept subordinate to the model-drawing. As is usual upon the introduction of any new system, we have run to the extreme of rejecting the good as well as the bad features of the old copy-drawing. Undiscriminating reforms are sure to lead to frequent changes to and fro between the same systems, without much good being derived from any of them. This has been the case with the Germans in regard to the pencil and crayon drawing. They have now wisely selected the good features of both methods, which are found mutually to assist each other. We are glad to learn that the Board of Trade intend to afford to the masters and pupil-teachers of schools under inspection a free admission to their schools of design, and that the Committee of Council on Education are prepared to make grants of useful treatises on drawing to those schools upon which the Inspector of Schools of Design shall make a favourable report. Under these circumstances, we may hope that this valuable branch of instruction will, ere long, be effectively taught in the best of our elementary schools.

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* Singing appears to have been taught with great success in the King's Somborne School, on a plan similar to that recommended above. In his report on the school, Mr. Moseley thus speaks of the attainments of the pupils in this respect:—"I have no doubt that the singing of the children is among the most pleasurable recollections of those persons who have visited the King's Somborne School. Occasionally the singing classes are assembled in the evening in the class-room, and the singing through of the pieces of music they have learned makes a village concert, to which some of the friends of the school are admitted. . . . . Singing is no task to these children; music has found its way to their hearts; a result which I have never met with in an elementary school, except where, as here, a large portion of the children are allowed to sing by ear, and where all have thus begun. Several of the pieces were certainly executed with remarkable firmness and precision, and all not less to the satisfaction of the farmers and village tradesmen (who, together with Mr. and Mrs. Dawes and myself, formed the audience) than to mine."—*Minutes of Committee of Council on Education*, 1847-48, Vol. I. p. 18.

The Phonic Method of Teaching to read, with one or two exceptions, has not yet been introduced into any of our schools. This, we admit, is partly attributable to the crude manner in which the method has been adapted to English use, but more particularly, we think, to the inability of infant-teachers to employ it. The Phonic Reading Books are certainly useless enough in their present form;* but these are not by any means a principal or even a necessary feature of the method, for by the time the children are able to follow a book, they may very well be released from the Phonic leading-strings altogether. The Reading Frame is all that the teacher requires; but considerable skill in the use of this is indispensable to the successful working of the method. We believe that there are only two schools in England in which the method has been employed with real success—the Norwood and Swindon Infant Schools; but the rapid and extraordinary progress which the children in these schools have made in learning to read has fully justified the amount of time and labour bestowed upon their instruction by the energetic and indefatigable teachers, Mr. Gardiner and Mr. M'Leod. It is not to be wondered at, if the method has failed in the hands of teachers who have not brought a similar amount of skill and perseverance to bear upon it. The Reading Frame presents merely the necessary tools for working with, and it is really too much to expect this apparatus to teach of itself. Yet this is precisely what has been done by some persons, who, after finding out their mistake, have set the frame aside as entirely useless, and pronounced the system impracticable. It is all very well to talk about the greater facilities which the German language affords for the application of the Phonic Method, in consequence of the regularity in the pronunciation of the letters; the success of the method in the two instances above mentioned is sufficient to prove that it may be rendered extremely useful in teaching English children to read, provided only that it be really understood by the teacher. We cannot hope for anything like a good Manual on the subject, until teachers have gained more experience in working it. We believe that a Course of Lessons has lately been published by Mr. M'Leod, of Swinton.

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* The Committee of Council have tacitly acknowledged this, for, although published under their Lordships' sanction, the Phonic Reading Books have not been inserted on the Schedule of School Books for which grants are made.

From all this it appears that methods of teaching are nothing but empty forms into which it remains for the teacher to infuse vitality. They should be looked upon as so many tools requiring skill to use them, and those who are disposed to complain of the tools should inquire whether the fault does not lie with the user. With the most skilful management, however, we are not to expect that everything may be accomplished by means of particular methods; on the contrary, we should look upon no method as the only true one, as exclusively and absolutely perfect, but endeavour to select the good features of all, and thus to construct for ourselves a real *eclectic* system of elementary instruction. If all the ability and all the good-will of the teacher be brought to his work, he will teach far better from having scope afforded him, in this way, for the free exercise of his judgment; for no man can be a good teacher, unless he thinks for himself and carries out his convictions in his school. Children too require to be acted upon in the most varied manner. They have each different mental wants, and no one of them entirely resembles another in capacity and disposition. What will suit some therefore will not suit others; and it is only by varying our mode of instruction that we can meet the needs of all our scholars.

It is much to be regretted that no good Manual of Method has yet been published for the use of English schoolmasters. We may perhaps be allowed to express the hope, that if any one should undertake the preparation of such a manual, he will not give us just what he may think the best methods of teaching the several subjects of instruction, for it would be impossible for any one man to do this efficiently; but that he will furnish us with an account of all the various methods that have been attended with success in elementary schools. Such a manual would be invaluable to schoolmasters, as it would contain the experience of all the distinguished men of their own profession; and if they had the benefit of this, the rest might with advantage be left to themselves.

THE EDUCATION OF THE AGRICULTURAL LABOURER.

ANY system of education that professes to improve the condition of a poor but very large and important class of the community, and to be at the same time self-supporting, must be admitted to bring with it no slight recommendation to our notice. It is the object of a pamphlet,* recently published, to prove that such a system has been devised and carried out for the education of agricultural labourers; or, in other words, "to show that the labour of boys in husbandry may be made equivalent to the cost of their maintenance and education during such a period as may be sufficient to enable them to obtain a good plain education, suitable in all respects to that station in life in which by their birth they may have been placed."

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* "How to improve the Condition of the Agricultural Labourer." By Thomas Batson, of Colley House, Tedburn, St. Mary, near Exeter (late of Kynastone House, Herefordshire). Pp. 30. *Groombridge*. London, 1851.

Before proceeding to the details of his plan, the author very justly observes that there are few employments which require careful and intelligent workmen more than agriculture, on account of its varied operations, which are dispersed over the whole extent of a farm, and therefore render it impossible that the eye of the overlooker can be constantly upon them, as in manufactories. Hence the necessity that the workmen, to be thus employed, should be educated as well as intelligent, in whom a considerable amount of confidence may be placed; and especially at a period like the present, when the success of the farmer must greatly depend upon the rigid economy of all his resources and the care with which the operations of his farm are performed. And by education the author explains that he does not mean only the teaching to read or write, but the formation of the character to eschew what is evil, and to do what is good, and training the mind to reflect, so that in the place of the dull stupidity which has been almost proverbial in our agricultural labourers, we may have the intelligent and thinking man. The well-known obstacles to the education of our rural population, particularly of boys, are also noticed; such as the general practice of taking children from school at a very early age to employ them in husbandry, that, so soon as they are able to earn anything, they may increase the small income of their parents; and when a child is continued at school until he has obtained a fair education, the complaints of the farmer that, from want of previous instruction in acts of husbandry, such child is unsuited for his work. To remove these obstacles a system is proposed by which, while the mental education is secured, boys are instructed in the general work of a farm, so as to be able, on leaving school, at once to earn their living as farm labourers, with satisfaction to their employers and with credit to themselves as respectable members of society; and during their continuance at school their labour is made to pay for their maintenance, clothing, and education. Nor is the system which is to produce these results a mere theory, but a plan which the author has carried on during a space of five years with much satisfaction, and as to the result of which he can speak with the fullest confidence. His plan, moreover, has not been tried in secret, as is evident from the following extract from the *Hereford Times*, the local paper of the district in which he then resided, and which the author has republished in his pamphlet, as better suited to show the whole working of the system from its commencement, than any account drawn up at a later period. Writing in 1848, he says:—

> "It is now nearly three years since I first formed a gang of boys as daily labourers, paying them at the rate of 3*s*. per week in winter, and 4*s*. ditto in summer; but finding that there was considerable difficulty in adopting a regular system of discipline, owing to the want of education and bad manage-

ment at home, I made the necessary accommodation for the reception of twenty boys on my premises, about fifteen months since, and took them under my own care entirely, for a term of four years, boarding, clothing, and educating them, in lieu of their daily labour on the farm—their ages averaging between nine and fourteen years. The system was this:—Each boy was provided with two suits; one for working, the other for better use, also a complete stock of linen, shoes, &c.; and at the end of four years I send them back with a like equipment. The working hours are from six till six in summer, and during the winter they work while it is light. The meal times are nine for breakfast, one for dinner, and six for supper; the evenings are spent in education until nine o'clock, when prayers are read, and they retire to rest. The food consists of bread and milk, or bread and broth for breakfast; bread, meat, and vegetables for dinner; and bread and cheese for supper, with the addition of coffee and pudding on Sundays. According to the rule universally observed on my farm, no beer or cider is allowed, excepting during harvest. The labour consists of the general farm work, the planting or dibbling of wheat and other crops, and the hand hoeing of corn, turnips, &c. The evening education is that of reading and writing, arithmetic, &c., and such religious and other instruction as time and opportunity will admit, in which, as in their daily labour, they are superintended by a young man for the purpose, who was four years at the Woburn National School, and six years at the Duke of Bedford's farm, where he also worked in a gang. My calculations show the cost of clothes, attendance, &c., for twenty boys, for one year, to be 62*l.* 12*s.* 6¾*d.*; being 3*l.* 2*s.* 7½*d.* per boy, per year; or 1*s.* 2½*d.* per week. This calculation does not include the person who works with the boys. Twenty boys' keep per week, at average market prices, as per amount consumed, 2*l.* 15*s.* 7*d.*, or 2*s.* 9^1*d.* per week per boy. Each boy's clothes, per ditto, 1*s.* 2½*d.* Total expence of each boy, per week, 3*s.* 11¾*d.*

"To show some of the advantages derived from the system, their work is much more carefully done than any man can do it working by the piece, at the prices usually given, and as shown by the annexed statement:—Wheat planting, six or seven boys at 8*d.* per acre, 4*s.* 8*d.*—not done in this county by men; wheat hoeing, six boys, at 8*d.* per acre, 4*s.*—men per acre, 4*s.*; turnip hoeing, five boys, at 8*d.* per acre, 3*s.* 4*d.*; ditto, second time, three boys, at 8*d.*, 2*s.*—men, 6*s.* 6*d.* to 7*s.*; mangold wurzel, six boys and one man plant five acres per day, say 1*s.* 3*d.* per acre—men 3*s.*; cleaning and heaping swedes, six boys, at 8*d.* per acre, 4*s.* men, 6*s.* This statement is very considerably in favour of the boys. In planting corn there is a considerable saving of seed; the seed is all in the ground, and at the required distances apart, to admit of hoeing and weeding, and thus it requires less harrowing. The hoeing is as perfect as it well can be done by hand, and all the surface is moved—a system seldom carried out when it is hoed by the piece. In the turnip hoeing the plants are at regular distances, and all the surface is moved, so that no weeds escape. The judges of swede crops for the Herefordshire Agricultural Society, the season before last, mentioned the cultivation of my swede crops as the most perfect they had ever seen; and I believe that in a field of forty acres a man might have crossed it in six places, and not have found six double plants. Of incidental work I need say little more than to remark that in weeding, collecting couch, collecting turnips and potatoes, making hay, turning barley and other crops at harvest, picking stones from the land, &c., the boys are peculiarly adapted, as these operations do not require strength but care, and from their size the boys get so much closer to their work. But these are few of the great advantages to be derived. Whilst my boys are learning to be good and skilful labourers, and to get their living, they are rescued from what are too frequently dens of immorality and vice, and are learning their duty towards God, and their duty towards their neighbour. They are learning habits of cleanliness, a systematic mode of living, and may be, I trust, the commencement of a better race of men. You may ask—is this system appreciated by the labouring class? I should say, most decidedly, it is. In three months after I had filled up my number I refused sixty applicants, and one poor woman walked twenty-four miles to get her boy placed with me, but my number was already made up.

"I must not omit to mention that in keeping these boys I am consuming my own manufactures) wheat, pigs, sheep, &c. (by which means I have the bran back on the farm; I have the butcher's profit on the sheep and pigs; and I keep my capital in my own country (my farm), instead of sending it abroad (*i. e.*, the labour market). I have said nothing of the accommodation and expence of fitting up, but it is not great. There are also books, &c., which are those generally used by the national schools, published by the Society for the Promotion of Christian Knowledge; in these a sovereign will go a long way. This, and the interest of capital invested in furniture, &c., when divided amongst twenty boys, amounts to very little per week. Perhaps in all 2*s*. per boy per year."

The author, after giving this extract from what he had himself written in 1848, inserts the remarks of a visitor of his farm, in which special mention is made of the intelligent manner of the boys, and of their healthy, contented looks, and that they shewed fair acquirements in reading, in religious knowledge, and in arithmetic, although two-thirds of them had not previously been sent to school at all, nor possessed any knowledge beyond that of the letters of the alphabet, and only three had been able to read before they joined the establishment. Their ages, it is stated, varied from nine or ten to fifteen years, with the exception of one of nineteen, and that several of them were orphans from the workhouse, and the majority the children of mothers deserted by their husbands, or of a widowed parent. The regularity of their mode of working in the fields is noticed as remarkable, and their work as generally done with evident care and attention. In one field was to be seen the result of a late competition among the boys for a prize of 5*s*., for the boy who hoed half a rood of wheat in the best manner and in the shortest time. The prize had been won by a boy who hoed his half-rood in one hour and fifty-one minutes, being at the rate of 3*s*. per day. The others averaged from two and a quarter to two and a half hours. The work was generally done with care, the land was quite clean from weeds, and the whole of the surface had been moved with the hoe, which is not generally the case when done by the piece. The gang-work is mentioned as the most interesting of out-door operations, and as this is well calculated to illustrate the benefit of such a system in training a more skilful class of agricultural labourers, the short account of it is worth perusing;—

"Twelve boys, directed by the manager, were engaged in sowing swedes, in a field of thirty-three acres. The field had been sown with mangold wurzel, but the crop had failed owing to the unfavourableness of the season. Four boys went first, making holes with their hoes in the ridges at regular distances. These were followed by the same number of boys with small cans full of seed, who put a little into each hole. Behind came four more who closed up the holes. While there was evident difference in aptitude among the youthful labourers, it was also evident that they all worked cheerfully, intelligently, and with regularity."

Our author considers the further results of his system as still more satisfactory; for, whilst the general reduction of the price of provisions has materially lessened the expence of maintenance, the value of the labour of the boys, from a more thorough knowledge of their work, and from greater strength, owing to their more advanced years, has considerably increased; so much so, indeed, that in some cases the daily work of each boy has been found equal to that of an able-bodied man. And thus far, he says, the advantages of the system have been generally acknowledged.

But several gentlemen of well-known experience in practical agriculture, having expressed a doubt as to the practicability of employing boys advantageously on a farm *during the whole year*, the writer undertook to keep a daily account of the work of the boys upon his farm, in order that a correct conclusion upon this point might be arrived at. This account it was his intention to publish in detail, but having found it too long to be brought within the limits of his pamphlet, he has reduced the substance of it into the more concise form of a monthly calendar of operations, with the addition of such observations as are necessary by way of explanation. For the particulars of this calendar we must refer our readers to the pamphlet, where will also be found very exact details of the several articles used in the food and clothing of the boys. From the calendar it may fairly be inferred that no lack of profitable employment for the boys has been experienced at any period of the year. A similar monthly account of the operations of boys on the Park Farm of the Duke of Bedford, at Woburn, during the years 1849 and 1850, is also given, and the writer adds that he has received a very satisfactory statement of the results of the labour of boys on this farm, in which it is confidently asserted, that "*there is no period throughout the year that the boys are not fully and profitably employed;* that the work is well performed, and that it is certainly more economical than that done by the piece." The testimony upon this subject by Mr. Valentine, now manager of the farm of the Royal Agricultural College at Cirencester, is as follows:—

> "I always found that boys' labour cost less on an average, and was better done, than that by men by the piece, at all work to which their strength was equal. There were certain times in the year when they were not profitably employed, as is often the case with men; they were, however, always employed at something, so that when required they were ready, and would therefore at busy times keep their places for this reason, although they might have had higher wages for a short time only. It very rarely occurred, however, that the boys could not be profitably employed at something."

The following statement of the comparative value of boys' work in 1847 and 1849 is given, to show the rapid progress made by the boys in their work from continued practice, and increased age and strength:—

	Cost in 1847 per acre.		1849.	
	s.	*d.*	*s.*	*d.*
Dibbling wheat (five pecks per acre) .	4	8	3	4
Wheat hoeing	4	0	1	7
Turnip hoeing	3	4	2	0
Cleaning, heaping, and covering swedes .	4	0	1	6

In 1850, eighty acres of wheat were let to six of the boys to hoe, at 3*s*. per acre, and during the whole time that they were thus employed, each boy earned 9*s*. per week.

From the above comparison the advantage of hiring boys for a term of years is obvious, inasmuch as their ability is greatly increased by continued practice and experience. In illustration of this the writer mentions, that, on comparing the account of work done on the Duke of Bedford's farm with that on his own, he found that the number of boys per acre in each operation was precisely the same as that of his own account for 1847, but that his number per acre in 1849 was *considerably less.* And this he explains by the circumstance that the boys on the Duke of Bedford's farm being daily labourers, there was of course frequent changes, while in his own case the same boys were employed for four years. Still the advantage of their being even so employed is proved to be very great by the readiness with which the neighbouring farmers take the boys after leaving " the gang;" and it shows how thoroughly their value as farm labourers is appreciated.

Their is one other particular which must be noticed, and on which the writer says the success of the system must entirely depend, namely, the overlooking and general management of the boys in the field and in the schoolroom. A gang of boys to work well must work as a piece of machinery; each boy must have his allotted task, and each must be placed according to his strength and capabilities. It is by this careful distribution of labour that such surprising amounts of work are performed; as may be seen exemplified by the excellent management shown in the works of our great public contractors, and in large and complicated manufactories. The difficulty of obtaining a suitable person as overlooker will probably be one of the main obstacles to the adoption of the admirable system which the pamphlet before us describes. Still this difficulty is not insurmountable. Mr. Valentine, already quoted, says, that the first person he employed had no idea of discipline; the second leaned to the boys, and yielded to the complaints of their fathers and mothers; but the third did well, and managed the boys to his entire satisfaction for about six years. Our author, Mr. Batson, mentions that he procured a young man to superintend the daily labour and the evening instruction of his own establishment, who had been four years at Woburn National School and six years in a gang on the Duke of Bedford's Farm; but he adds that he made it his duty to attend personally each evening to assist. It is doubtless from such establishments that proper overseers must be procured, and as the number of the former increases the difficulty of obtaining superintendents will diminish.

It is gratifying to observe indications of increasing public feeling in favour of such a system as that above described and so successfully tried by Mr. Batson. He himself mentions the farm of the " Philanthropic Society" in Surrey, and the "Orphan Agricultural School" for orphans of the City of London, which has lately commenced operations on a farm of 20 acres, with a view of employing, maintaining, and educating 25 boys, and which is intended merely as the foundation of a larger establishment. The Cambridge Industrial School, noticed in the last number of our Journal, may be cited as another instance where the training of boys as farm servants has been successfully established. Others might be mentioned, but unfortunately they are at present few indeed when compared with the demand for such establishments. We must conclude with offering our cordial thanks to Mr. Batson for having brought the important results of his labours before the public, and with expressing an earnest hope that they may become generally known, and thus induce others to carry out the system which he has explained, and of which we confidently predict that the result will be the foundation of a progressive improvement of the condition of the labouring classes.

ON SUNDAY SCHOOLS.

We sincerely hope that the subject on which we here propose to say a few words is not beyond the province of our journal, for we have to say that which we believe materially concerns two classes of society deeply interesting to us.

About forty years ago, good and pious men, lamenting, as they well might, the fewness of parochial schools, and anxious to make up the deficiency as far as in them lay, gradually introduced what is now the Sunday-school system. A school here, and another there, was established, till in the course of time they have filled the land, and at the present hour a parish can scarcely be found in town or country which does not possess a Sunday school. Far be it from us to deny—nay, we gladly and thankfully affirm—that at the time this system began to be developed among us, it was a most praiseworthy exercise of enlightened Christian benevolence, and has proved a great blessing to thousands of our fellow-subjects. Nor at the same time do we wish to discourage Sunday schools as such, but to call attention to what we are disposed to think is Sunday-schooling carried to excess, and thereby defeating the end in view. Since the time spoken of above, a great, and, we trust in the main, a happy change has taken place among us. There was then no national education; nothing that deserved the name of national schools. Sunday schools were established for the benefit of those who, for the most part, *now* attend national and other parochial schools; and what was stern necessity then, if the children of our poorer brethren were to have religious education at all, is at the present open to a temperate and kindly review. Our object is, therefore, to call attention to the system as described below, to point out how, in such cases, it is likely to work on the parties immediately concerned—on the children, that is, and on the parochial minister and his staff.

Let us first consider the case of the children, for whose benefit this work is undertaken. Let us attend them through the day. And here we must be allowed to state that the cases to which our remarks are intended to have reference, and which we fear are not uncommon, are those where the routine is as follows, or very nearly so:—From nine to eleven in school, from eleven to one in church; they are then allowed to run home for dinner. At two in school again; from that hour till half-past four or five they are, in towns, in school; and in the country in school and attending the afternoon service in church. With but little intermission, therefore, the attention of the children is kept, or supposed to be kept, on the most important subjects for nearly eight hours together. Some of these too are little children; many of the rooms and churches are crowded, and in the summer are too often ill-ventilated and oppressive. Let those who are concerned with schools conducted after this manner think what is likely to be the result. Ought we to wonder if we find that weariness and not instruction or edification is the principal fruit of a day spent in this way? May it not be in some measure owing to this that boys and girls, as soon as they leave school, are unhappily so rarely seen at church at all? Can the sabbath have been a delight to them, when, as soon as they are in a sense their own masters, they notoriously pass the day in a manner almost entirely at variance with their early training and habits?

At this point we desire to call attention to a practice followed in schools of a higher kind, especially in establishments for young ladies, the practice, we mean, of setting children to write out as much as they can recollect of the sermon. This has always seemed to us calculated to give young people something like a dislike of Sunday and its services. They will dread the task, and the day on which it recurs, and the services with which it is connected. And even where this is not the result, is not the practice likely to create in their minds an absorbing interest in the sermon, and make them consider that part of the service the only part with which they are concerned? We cannot but think it desirable to avoid as much as possible rendering Sundays, or ordinances of religion, tasks. Not that these are to be days of idleness; far otherwise. Still the notion of "rest" is not to be entirely overlooked, and whatever is attempted in addition to public and private acts of devotion, should be rather reading and partaking of a conversational character, than what is irksome and of the nature of task-work.

We could not resist making this short appeal in behalf of those young ladies and others who are running this risk; our proper business however is with the clergyman and the teachers in Sunday schools. In the majority of cases the clergyman has two full services to perform, and frequently other occasional duties on the Sunday. Besides this, in all districts the sick would be most beneficially visited on that day, if he had the time and physical strength, especially in the case of those sick persons who in health have been in the habit of attending the church regularly. On this day, too, in rural districts, he would have, humanly speaking, the best chance of being of service to the father of a sick child, or the husband of a sick wife, who is never to be found at his home on other days of the week. To do these important duties well, and to the good of those among whom he ministers, is quite sufficient for one day. Whereas, if he be young or zealous, or fear the remarks of gossiping neighbours, he will be found spending two or three hours in a school-room. In trying to do as much good as he can, he attempts more than he is equal to. And thus, after a few years, men have been weakened in health, obliged, it may be, to leave their work and their parishes, and seek in a distant part of the country that bodily vigour which they have sacrificed to their zeal in doing that which, though most excellent in itself, they have been carrying to excess.

Again, the teachers demand and deserve a word of sympathy and support. They have come forward with the best intentions, with the most benevolent regard to their poorer or more ignorant neighbours. Their wish and desire is to be doing God service, and to be doing at the same time a most important service to man. On many of these very frequently the beautiful services of our church are in a great measure lost. Feelings of oppression and weariness—at times, too, we are assured, even of disappointment and irritation—keep them from thoroughly entering into the spirit of the ordinances with which they are engaged. Might not a modification of the system be useful to these also?

Let us not be misunderstood. We have no wish to depreciate Sunday schools, but rather, as has been already said, to speak of them with respect and high commendation. How could we do otherwise? We have no wish to deprive the little ones of any help, any encouragement which may assist them in running their Christian course. Nothing can be farther from our thoughts. Rather we desire that the help they do receive shall be such as, under God's blessing, may be profitable to them and really useful. Our object is to strengthen the hands and encourage the endeavours of some clergyman, who finds himself fettered by a practice of this kind, but who feels unable single-handed to modify and correct what he feels to be wrong. After what has been said it may possibly be expected that we should illustrate our meaning by laying down some scheme or plan of proceeding. If we do so, it must be understood that we do so with a full knowledge that the matter under inquiry is a delicate one, that what we say is with much hesitation, and that we have no desire to dictate in any way to the managers of Sunday schools. With this premised, we recommend that those children, who have the privilege of week-day schooling, should be called together for an hour, or at the most an hour and a half, on the morning of Sunday. During that time let them be occupied chiefly with repetition, or showing their acquaintance with what at their last assembling they were directed to prepare. Their scriptural readings will thus be most likely to be extended over the week, and help to sanctify each day of it. Let those who are near their homes be dismissed to accompany their parents or sisters or other friends to church. Detain only those who are far from home, or who have no one to accompany them. Thin as much as possible the corner or gallery where the children are congregated; and then perhaps one would be less likely to hear the application of a cane to the shoulders of an inattentive boy—the most undevotional of sounds. The teacher of a class may at the same time be just as careful to see that the dismissed scholars are in church. We are no advocates for irregularity; and each teacher in going out or coming in would readily discover his or her little party. If the school be open at all in the afternoon, let it be to those only who do not attend school during the week. The time would be well and profitably expended on them. And if an hour during an evening in the week could be set aside for them by their pastor, some hold might be kept upon a body of young people whom at all times it is most difficult to serve—those that are between fifteen and twenty-one—a body too often to a thinking man the great eyesores of the parish. If some such plan as we have ventured upon be followed, we hope it might have a beneficial effect upon the parents, especially upon the father. He is generally absent during the week and sees nothing of his children. Is it wise or right to take the child away for so large a portion of the time, during which the parent and child can have healthy intercourse together? Is it not likely also that if the child went to church *from home*, the parent might be more frequently seen going in the same direction? It is a beautiful sight to see father and child going up hand in hand to the house of their common God and Father. Would that it were less rare! C. P.

ON THE ADVANTAGES OF CATECHETICAL INSTRUCTION, BOTH AS IT RESPECTS THE TEACHER AND HIS PUPILS.

OBJECTIONS have been raised against the use of the catechetical method, or rather against its *abuses*, for it is against these that such objections have been pointed, rather than against the method itself rightly understood. This method, we maintain, when skilfully employed, possesses peculiar advantages, both as it respects the teacher and his pupils.

1. It is useful to the teacher, inasmuch as by it he is enabled to call into exercise all the powers and faculties of his own mind, while imparting his information. Nay, he is not only enabled to exercise his own powers of mind, but is laid under the necessity of doing so, in order to judge of the correctness of the answers he receives, as well as to be prepared with subsequent appropriate questions; thus, while he by this method teaches others, his own mental powers are exercised, and thereby strengthened and improved.

2. The teacher's language, by the employment of this method, becomes more perspicuous, and more copious.

When the teacher addresses his pupils uninterruptedly—that is, when they merely listen—he employs such words and expressions as are most familiar to himself in connexion with his subject, and such as his memory most readily furnishes him with. Whenever he has occasion to speak of the same subjects he employs the same language, and that, as it were, mechanically. Nor does he vary his language, or exchange one set of expressions for others, except he should, by some circumstance, be led to reconsider his subject, and fresh terms, in connexion with it, should impress themselves more deeply on his memory than those he had been in the habit of previously employing. The teacher, in the case we are supposing, does not feel himself under the necessity of casting about in his mind for different words, or a variety of expressions to convey a single idea or circumstance to his pupils. It, therefore, depends entirely upon himself, whether or not, and to what extent, he may familiarize himself with language. The probability is, that he will not make any effort at all of the kind, especially should he imagine, as he is very liable to do, that his language is already unobjectionable, sufficiently correct, and sufficiently intelligible. Here, it is obvious, the teacher has no proof, and therefore cannot be certain, whether his pupils do or do not understand his language.

The case, however, is quite different when he employs the catechetical method. It cannot remain unknown to him, when he catechizes his pupils, whether they have rightly understood what they have read or heard. And when he does discover that they have not rightly apprehended the subject, and that the fault lies in the language employed, he is then driven to reflect how he can best bring the matter home to their understandings. This he, of course, can only effect by clothing the subject in language which to the pupils is more simple and more intelligible. He sees himself under the necessity of substituting at one time, it may be, a simple every-day word or a combination of such words for some technical term, some word that is strange, or of rare occurrence; at another time he finds it necessary to change or remodel the sentence entirely, breaking it up, perhaps, into several shorter and more simple ones. An exercise of this kind, it is clear, cannot fail to improve the teacher's knowledge of language and his power of expressing himself. There is, perhaps, no branch of instruction taught in our elementary schools in which this simplification of language is more frequently or more imperatively called for than in religious instruction. By the employment of the catechetical method and the constant effort to express himself in language level to the capacity of his pupils, the teacher will become acquainted with a large stock of homely (call it, if you will low), yet expressive language, which is current among the humbler classes of society, but is excluded from what are called the educated circles, and forms no part of our ordinary book language. It may be made a question how far it is desirable that the pupils should ultimately retain the use of such language, but there can be no question that it is highly important that the teacher should be familiar with it, as such knowledge may be rendered, by him, a valuable auxiliary in the intellectual development of his pupils.

3. The teacher who will faithfully practise the catechetical method, will find that his own religious and other knowledge will thereby gradually become more thorough and more extensive than it may hitherto have been. He will thus experience the truth of the adage, *docendo discimus*, by teaching we learn. The answers which he receives from his pupils, by suggesting other questions, will also, sometimes, especially at the outset of his career as a catechist, discover to him obscurity, indefinitiveness, and short-comings in his own knowledge. Much of this obscurity, and of these inaccuracies in the teacher's knowledge will receive illustration and be corrected by the catechetical exercise itself. Should this not be the case, he will, at least, be made aware of his ignorance, and will feel himself under the necessity of removing it by farther research and reading. What is thus acquired to supply *a felt want* is not likely to be soon forgotten. The teacher, who by such means acquires an adequate, well-digested, and, as one may say, practical knowledge of the subjects which he teaches, together with a readiness of bringing it out, and turn-

ing it to account, will possess some of the leading qualifications necessary to constitute an efficient teacher. He will then be in a condition, when he receives incorrect answers to his questions, not merely to tell his pupils that they are wrong, but to point out to them, and lead themselves to see, wherein the fault lies, whether in matter of fact or expression. From thus exposing what is wrong, what is right and correct will often appear, by contrast, in a stronger light, and take a firmer hold on the minds of the children. The superiority of this rational method of teaching (if we may be allowed to call it by this name) over that which is purely dogmatical, is too well known, to those who have experience in the matter, for us to do anything more here than hint at it.

In other methods of teaching, the teacher can more easily prepare himself than when he employs the catechetical method. To the teacher, however, who would give a good catechetical lesson, a careful previous preparation of his subject is, as a general rule, indispensably necessary. He must possess a firm grasp and complete mastery of his subject, in order that he may not be disconcerted or thrown off his guard by the wrong, and especially by the half-right answers which he receives, and so be driven from the object of the lesson; and also that he may not, by impatience, fretfulness, or harshness, discourage the feeble efforts of his less forward or less talented pupils. All this demands—what the teacher should sedulously aim at acquiring—great presence of mind, quickness of thought, a readiness in detecting mistakes, and in discriminating between what the children know and what they do not know, or know only obscurely. These qualifications will give the teacher a facility in linking the information which he communicates to his pupils with what they already possess, and in shaping his representations and illustrations in conformity with their previously acquired ideas. Here the teacher finds ample scope for the exercise of all his tact and talents; but it is a highly profitable exercise—so much so, that it is perhaps not too much to say, that the best catechist is the best teacher.

4. The value of the instruction depends, in a great measure, upon its being thoroughly acquired and rightly understood by the pupils. It is a matter of great importance therefore that the teacher should ascertain that they do thus fully understand and master the subjects which he brings before them. There is no better way by which this can be accomplished, than by requiring the pupils to tell, in answer to the teacher's questions, what they have learned. To be convinced of the value and necessity of this questioning at each step of the instruction, let any one address children upon any subject for five or ten minutes in ordinary language, and then ask them to tell him what he has been talking about. Those who have never tried this will be surprised at the result. It will be found that the children, for the most part, are totally unable to state the substance of what has been told them. Question them more minutely, and it will be found that to some things told them they have attached no meaning at all, or a wrong one; that they have failed to understand the words employed; that they have not detected the connexion and the dependence of the sentences, and thus have lost the train of thought; and that the whole has left on their minds only an indistinct and confused impression. Had the cate-

chetical method been employed, this could hardly have been the case. The answer to each question would have shown the teacher, as he proceeded, whether the children rightly understood his language and the subjects of which he was speaking. By this method he would have been able to remove difficulties; and, at each step, to clear up obscurities, whether in sense or in language. In short, as there is no method which affords the teacher greater facilities for making himself intelligible to his pupils, so there is none by which he can better satisfy himself whether they correctly and thoroughly understand his instruction.

5. There is but one other advantage we shall here mention, which belongs to the catechetical method, as it respects the teacher; but it is a highly important one. It affords the teacher an opportunity of becoming intimately acquainted with the intellectual talents, the calibre of mind, and peculiarity of disposition, which characterize the children individually. Without a considerable practical knowledge of this kind no teacher can do justice to the intellectual training and education of his pupils. A knowledge of his pupils individually, and of the characteristics by which they are distinguished, must therefore always be a matter of important study to the teacher. Here his attention will be directed partly to their dispositions and habits, and partly also to their outward circumstances; and the almost infinitely varied differences which he will thus discover, will abundantly repay his patient and careful investigation. In one he will probably find a memory which takes the lead; and, as it were, throws into the shade all the other powers of the mind. Such a one must first have collected everything in his store-house, before he can elaborate it. Another pursues quite an opposite course. His judgment approves, and it is only what is thus approved that he treasures up. His magazine, if one may so speak, is poorer, but his store has been selected after his own fashion. *There* is no lumber nor confusion. All are his own, carefully-selected and laboriously-acquired possessions. There sits a boy to whom almost everything comes through the imagination. He evinces little or no reason, but he carefully marks such narratives as come under his notice, and makes his own whatever of them pleases him. Again, this pupil advances slowly and laboriously, but he rarely goes backwards. He may be absent from school for a considerable time, and yet have forgotten little or nothing. That one advances by rapid strides; but a few days' absence will put him four weeks backwards. Yonder mechanical genius seems to effect little or nothing in the school; yet he will, probably, grow up a useful man, and, as an artisan, be much more so than his neighbour, who, though he is of much quicker parts, will probably make an inferior workman, because he does not possess sufficient patience and steadiness for labours of a mechanical kind.

The dispositions and habits too in all these children, will be found to be not less various than their intellectual endowments. This boy is almost always the first in the school, and for this he deserves praise, yet it may be feared whether he will grow up a good man. It is pride that impels him. He does not love to learn; he loves to excel. That soft-looking reserved little girl answers but little, but she feels acutely. Observe her during the religious instruction. The little she does say comes from the heart. This boy, on the other hand, during religious instruction is giddy, perhaps he is generally so, but at that time he seems to be fuller of levity than at any other time, and to be so on purpose too; in short, he is then all that a bad boy can be; and again, *this* boy lords it over the whole school both intellectually and physically; *this one* and one or two others, it is true, occasionally question his sway a little, yet they always give in—sometimes willingly, and sometimes unwillingly. In short, one will find in a school amiability and quarrelsomeness, delicacy and roughness, craftiness and straightforwardness; and all the qualities that are to be found among the up-grown members of a community. Words and telling alone will be enough for *this* pupil; *that* has more of the animal in him. He must first be softened by vigour; he then becomes tractable, like a faithful spaniel, which is so much the fonder, in proportion as it was at first vigorously treated. With another perhaps comparatively little harshness from his teacher would sour his temper, and estrange him from him for ever. And whence then originates all these differences? Is it not in a great measure, from the varied circumstances in which the children are severally placed? The children of *this* family are almost all noted for their fluency of speech, and therefore distinguish themselves in answering. This fluency they have acquired from their mother, who, although she has the character among her neighbours of being a great gossip, is a good nurse to her children, for she will scarcely let any thing pass that comes under their notice, without talking about it with them. Yonder boy, who, regards you with such a forbidding look, is the son of a man who looks upon the clergy and teachers only as persons to whom he must give, and hates the whole of them. Observe yonder boy whose aspect at once bespeaks languor and good-nature; alas! a severe fever has shattered his nerves. He is neither quick at learning, nor active in his motions. He seems to look with displeasure upon the better face of his neighbour. But judge him not harshly nor rashly. His parents themselves are in a state of comparative destitution, and are unable to supply him with the proper necessaries of life. Thus then these several goods and evils, a spirit of revenge and a spirit of forgiveness, industry and laziness, &c., though often the creatures of education, are also frequently the results of physical constitution, and the effects of a thousand indirect and seemingly trifling causes—effects produced by wheels within wheels. The field which here opens to our view is very extensive, yet it is necessary to have mastered the chief points which it presents, before one can say I possess a knowledge of children. Indeed a perfect knowledge of this kind is what no one possesses. He is most perfect who errs seldomest.

The gardener and the husbandman can accomplish nothing without a knowledge of the soil; so too the teacher can effect nothing without a knowledge of his pupils. This knowledge is necessary to him for the moderation of his expectations, for the determining of his treatment, and for the confirming of his satisfaction. For the moderation of his expectations. For whence comes it that so many teachers expect and require from children of from twelve or thirteen years of age all the earnestness of manhood, and vex themselves because a boy of this age does not recognise so fully and feel so deeply as they do the importance of this or that branch of instruction? Such teachers know not the child, and know not what they ought to expect from him; they know not what to him is *natural*, and what is *unnatural.*

It is just as little desirable to see a manlike child, as it is to see a childish man. Whence comes it that so many teachers have their individual favourites? They know not such children aright, and perceive not the conceit which they thus foster in them, and thus convert their industry itself, one might almost say, into a vice. Whence comes it that so many teachers expect from all children an equal facility in committing to memory, in thinking and expressing their thoughts? Such teachers would have all mankind formed after one model, whereas God in his infinite wisdom endows men with faculties and capacities almost infinitely varied. Whence comes it too that many teachers inflict chastisement on the child with extreme rigour for faults which are, perhaps, rightly attributable to its parents or to the situation in which it is placed? Is it not because they know not the child and are ignorant that under the circumstances in which he was placed it was almost impossible for him to have acted otherwise?

And again, what a multitude of faults in our treatment of children originate in our want of a proper knowledge of them. Thus it is we often mistake nascent wickedness for childish frolic, and know not, or forget, that "the child is father of the man." Thus one is often inexorably rigorous, where a word or a hint would have perhaps effected more than severe punishments. One does in the presence of children this or that, and thinks they will not observe it, imitate, or misuse it. But the child, in this respect, is often sharper than seven wise men; and be it remembered too, that the purer the paper is, so much the more indelibly does that remain which is inscribed upon it. The teacher, who is ignorant of his pupils, commits every day, though unknowingly, a multitude of faults, which his pupil will probably pay dearly for in after-life. Any one may attempt to dispense the secrets of the healing art, but if he does not know the nature and wants of his patient, he will do him more injury than good.

Little need be said in order to show that a knowledge of his pupils is indispensably necessary to the teacher's own personal comfort and satisfaction. His satisfaction is, or ought to be, the offspring of his usefulness; and whatever diminishes *this* must disturb *that.* Many teachers—and these not always the worst—seem to strive in vain to acquire faith in their labours, because they see not in their children the fruit which they expect. The teacher, however, who possesses such a knowledge of children as a series of years of observation will give, is aware that all is not lost which some may deem to be thrown away. A seed-corn which may have been thought to have been sown in vain, remains concealed under a clod of earth. The rains and the frosts of winter soften, and the warmth of spring fructifies the soil. It springs late, but still it always bears its fruit. It is impossible, says one, that this youth can ever turn out well. The example which he sees at home frustrates the salutary influence of his school instruction. Judge not so hastily, brother. He who knows children extensively will be able to point out to you examples of many such men, who, though at a late period, have remembered and profited by their early instructions. From vice springs misery, and from misery remorse, and this, alas!

often softens the hardest soil, that which has been longest trodden under foot; then the yet undecayed seed-corn still unfolds itself, and bears living fruit. Thus he who knows children, and waits in patience, will not speedily say, "I have laboured in vain;" and much less will he be morose and discontented, like him who knows not the nature of children. In short, there is no other plan of teaching which affords the teacher equal facilities with the catechetical method for acquiring this intimate and individual knowledge of his pupils. The answers which he receives to his questions, give him a clearer insight into their habits of thinking and mental peculiarities than anything else can do, and so enable him to shape and accommodate his lessons and questions to the condition of his pupils.

1. The catechetical method has also advantages as it respects *the pupils.*—The teacher of an elementary school may impart his instruction by other methods than the catechetical one; but by no other will he, we believe, so speedily, and with so much certainty, accomplish his object. *The very tone of the catechist's voice, it has been observed, and his colloquial manner, have their important results.

2. The catechetical method is eminently calculated to awaken and preserve the attention of the pupil throughout the lesson; for to many of the questions it will be impossible for them to give correct answers, unless they have closely attended to, and rightly understood, the previous questions and their answers. In a catechetical lesson, which is conducted as it ought to be, the questions will be intimately linked together, and but comparatively few isolated questions will occur. The previous question and its answer pave the way, as it were, to the subsequent question and answer, which thus in their turn become a kind of supplement to those that went before, and an introduction to those that follow after. Each step, too, in the process contributes more or less to the correct and full knowledge of the subject ultimately to be elicited. The pupils, therefore, must be attentive not merely to one or two, but to the majority of the questions and their answers, in order that they may be able to answer correctly the questions asked them.

3. By the catechetical exercise both the reason and the memory are called into exercise. When the pupil is questioned he must not only attend closely to the question in order to fully understand it, but he must reflect on what will be a correct answer to it. In doing this, it will be necessary for him to carry back his mind to a series of questions previously asked, and to preserve unbroken the chain of thought running through the lesson. When the teacher conducts the catechetical exercise skilfully, and puts his questions with sufficient rapidity, it must obviously form for the pupils an excellent intellectual training. Indeed, it may be asserted, without fear of contradiction, that there is no other plan of teaching which at once beneficially exercises so many of the faculties of the human mind as the catechetical method does.

4. No greater benefit can accrue to the pupils of our elementary schools, from the instruction they receive in them, than the power of expressing their thoughts orally with facility and correctness. What an immense disadvantage in this respect do the illiterate, and foreigners

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imperfectly acquainted with our language, labour under, when they attempt to convey to others what they themselves think or feel! An adequate, a comparatively adequate knowledge of language, what an important acquisition this is! And of how general application! It deserves preeminently, in reference to all, to be called "*useful knowledge*." But to give a practical knowledge of this kind of language, grammar rules or precepts respecting what constitutes correct language are not enough. As in other cases, so especially in this, practice is indispensably necessary, and no school exercise affords so good an opportunity for such practice as the catechetical method.

"Nobody," observes Locke, with much point, "has made anything by the hearing of rules or laying them up in his memory. Practice must settle the habit of doing, without reflecting on the rule; and you may as well expect to make a good painter or musician extempore by a lecture or instruction in the arts of music and painting, as a coherent thinker or strict reasoner by a set of rules showing him wherein right reason consists." The faculties of the soul are improved and made useful to us after the same manner as our bodies are. Would you have a man perform any mechanical operation dexterously and with ease, let him have ever so much vigour, suppleness, and address, yet nobody expects this from him unless he has been used to it, and has employed time and pains in fashioning and forming his hand, or other parts to those motions. Just so it is in the mind.

Now there is no plan of teaching pursued in our elementary schools, as we have already observed, that is so well calculated, as the catechetical method is, to impart to the pupils a familiar and practical acquaintance with language. By this method, besides having their attention directed to the subject brought before them as a whole, they are also accustomed to discriminate, and speak of, in correct language, the points of difference, of resemblance, or of analogy, that may subsist between the subject or object and others with which they are familiar. When a mistake does occur, either as it respects fact or expression, an opportunity is afforded in the catechetical instruction of correcting the mistake in such a way that the correction is likely to be permanently retained.

5. The success of the instruction depends, in a great measure, on the interest and pleasure which the pupils take in it. There are some branches of instruction which, from various circumstances, are more pleasing and interesting to children than others. The power, however, of investing with a proper degree of interest subjects in themselves dry, is an important secret in efficient elementary teaching; and the catechetical plan of teaching affords peculiar facilities for giving such interest to the subjects of instruction. By the question, when properly framed and put, the mind of the teacher acts, as it were, directly upon the mind of the pupil; and every one conversant with the subject knows, that it is the direct action of mind upon mind which in a special manner gives interest to the instruction, and produces some of the best and most valuable fruits of instruction. There is a variety, too, in the catechetical process, when rightly conducted, which does away with the uniformity, monotony, and tediousness felt in some other plans of teaching. From the attention of the whole of the pupils being kept up

simultaneously, and each individual being required to take a part in the instruction, they can hardly avoid feeling a *lively* interest in the subjects thus brought before them.

Other advantages belonging to the catechetical plan of teaching will, no doubt, occur to the mind of the experienced teacher. Those we have here mentioned will, however, we trust, be sufficient to convince all of the value of this plan of teaching, and the special claims it has upon the attention of the elementary teacher. W. R.

THE PREMIER'S VIEWS ON THE POSITION OF THE SCHOOLMASTER.

THE following extract is from Lord John Russell's speech on the occasion of the Education Grant being voted, July 11, 1851.

"He thought they could not do too much, either as members of that House or as individuals, to improve the condition and honour the situation of schoolmasters. There was no class of men whose employment was more useful to the community, and it was deeply painful to reflect what small salaries many of these persons received for the constant application of much ability, much learning, and much science to the laborious work of education, so beneficial to all, yet so little appreciated."

All who are practically engaged in the business of the school, and every promoter of sound education for the masses of the people will hail the foregoing expression of opinion on the part of her Majesty's chief adviser as indicative of the appreciation with which the office of the educator is beginning to be regarded in influential quarters. We congratulate the schoolmasters on this public tribute to their usefulness, sympathy with their condition, and anxiety for its improvement. The favour with which the expressions we have quoted were received by the House, taken in connection with the circumstance that no opposition was offered to the augmentation of the grant from £125,000 to £150,000 for the current year, affords most reliable proof that due value will ere long be attached to the office of the elementary teacher.

In another portion of his speech his lordship remarked that "The great point to be gained was not so much the number of children going vaguely to school, as the securing a sound quality of education for those who did go there." "This improved quality of elementary instruction can only be imparted by duly qualified teachers, who must be more liberally remunerated than has heretofore been the case, except in rare instances." We are glad to have such an authority in favour of the increase of schoolmasters' salaries, and the improvement of their condition. Education will never be estimated at its proper value while the instruments of its dissemination are lightly regarded. Managers and promoters of schools will do well to assist to improve the condition and honour the situation of deserving masters, who will thus be more strongly impressed with a sense of the responsibility of their office, and be supplied with additional incentives to exertion in their important work.

GENERAL EXAMINATION OF CANDIDATES FOR CERTIFICATES OF MERIT.

EASTER, 1851.

MISTRESSES.

(Three Hours allowed for each Paper.)

GRAMMAR.

SECTION I.—1. Parse the following sentence, and explain the syntax:—

Of the same nature with the indulgence of our domestic affections, and equally refreshing to the spirits, is the pleasure which results from acts of bounty and benevolence, exercised either in giving money or in imparting, to those who want it, the assistance of our skill and profession.

2. How many moods have verbs? Explain the use of the subjunctive mood: by what words is it usually preceded? Construct two sentences as examples.

3. Construct three sentences to illustrate the rules for the nominative absolute, the construction of the relative pronoun, and nouns in apposition.

SECTION II.—Write a clear and simple paraphrase of this passage:—

Not only these fair bounds, but all the earth
To thee and to thy race I give; as lords
Possess it, and all things that therein live,
Or live in sea, or air; beast, fish, and fowl.
In sign whereof, each bird and beast behold
After their kinds; I bring them to receive
From thee their names, and pay thee fealty
With low subjection; understand the same
Of fish within their wat'ry residence,
Not hither summoned, since they cannot change
Their element to draw the thinner air.
As thus he spoke, each bird and beast behold
Approaching two and two; these cow'ring low
With blandishment; each bird stooped off his wing.
I nam'd them as they pass'd, and understood
Their nature, with such knowledge God endued
My sudden apprehension.

SECTION III.—1. What letters are sometimes unpronounced? How many sounds have the letters a, d, and g?

2. What is the plural form of the following nouns—loaf, brief, cow, die, oasis, index, and cherub? Why is the plural formed sometimes with s, and sometimes with es?

3. State and account for the principal difficulties in teaching children to read correctly.

SECTION IV.—Give instances of common measures or metres used by English poets, and point out wherein the difference of their rhythm consists.

2. When did the following writers respectively flourish:—Gower, Hooker, Bacon, Spencer, Dryden, Thomson, Burke, Gray, Johnson? Give some account of one of them.

3. Give an analysis of one of the following works:—A play of Shakspeare's. Milton's Paradise Lost, or Regained.

MUSIC.

SECTION I.—In a school of 110 children, with three Pupil Teachers in their fourth year, how would you teach vocal music?

SECTION II.—1. Explain fully the terms Dal Segno, Da Capo, Mezzo Staccatto, Fine, Legato, Sforzato, Andantino con moto, Allegretto con brio. Tutti.

2. Explain Alla Breve Time, Duple Time; and state how many beats should be made to a bar of $\frac{6}{8}$ and to a bar of $\frac{4}{4}$ Time. Write a short passage of music, to show the most convenient form for a bar of $\frac{6}{8}$ Time.

Are there any modulations more common than others? If there are, name them. What is a modulation?

Section III.—1. How is it known whether a piece of music is written in the major scale indicated by its signature, or in its relative minor?

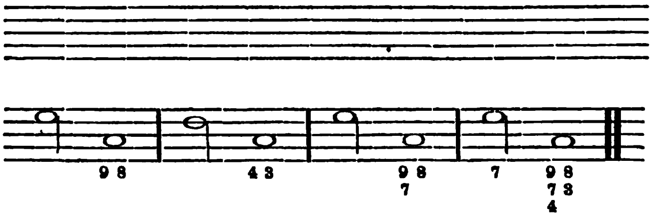
2. In every major scale what notes invariably bear major thirds?

3. What is a Canon? What is a Round? How are they performed?

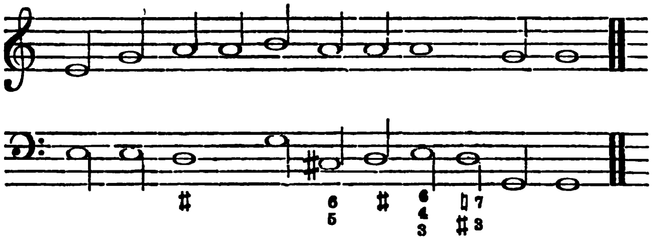
Section IV.—1. How many chords are derived from the common chord?

2. What is meant by contrary motion, similar motion, oblique motion?

3. Write the chords indicated by the Figuring in the following passage.



Section V.—Write four parts to the following passage.



ARITHMETIC.

Section I.—Write out *full* notes of an *introductory* lesson on

1. Subtraction,
2. Multiplication, or
3. Simple Interest.

Section II.—1. Find how many lbs. there are in 1234 tons, and the value at ¼*d.* per lb.

2. The circumference of the forewheel of a carriage is 5 ft. 3 in., and that of the hind wheel 7 ft. 1 in.—Find the number of revolutions made by each in a journey of 100 miles.

3. Find the sum of ¾ of a guinea, ⅜ of a crown, and ⅝ of a pound.

Section III.—1. What will 117 tons 8 cwt. of coal cost, if 71 tons cost 79*l.*?

2. Find, in as many different ways as you can, the price of 147 articles at 9*s.* 6½*d.* each.

3. How many days of 12 working hours each should 17 men take to do a piece of work similar to one which 10 men finished in 19 days of 11 hours each?

Section IV.—1. Write out, with examples, some of the simple rules in mental arithmetic, that are of most practical use.

2. Find the interest on 257*l.* 10*s.* 6*d.* for 1 year, 3 months, 5 days, at 4½ per cent. per annum.

3. Find the sum and difference of $\frac{5}{19}$ and $\frac{6}{17}$.

[This may be worked by decimals.]

4. Reduce $\frac{4}{5}$ of a pound to the decimal of a guinea.

SECTION V.—1. What are the uses of the cash book—day book—journal—ledger?

2. Explain, as you would to a pupil teacher, the advantages of the study of book-keeping, and those of the system in which you would instruct her.

ENGLISH HISTORY AND BIOGRAPHY.

SECTION I.—1. State what you have read about Caractacus.

2. At what time, for what purpose, and under what circumstances, was Augustine sent to England?

3. Describe as far as you can the religious state of the ancient Britons, the Saxons, the Danes, and the early Normans in this country.

SECTION II.—1. Give a short account of the ancient inhabitants of Scotland.

2. Mention, with dates, some of the chief circumstances of the invasion of Scotland by Edward I.

3. From what causes, and with what result, was a Scottish Queen confined in Lochleven Castle?

SECTION III.—1. Name, with dates, the chief events in English History with which Philippa of Hainault is connected.

2. What effects did the family connexions, character, and married life of Catharine of Aragon produce on the state of this country?

3. Who was Elizabeth of Bohemia? How does she form a memorable link in our national history?

SECTION IV.—1. Name, in order, some of the most important events in the history of England since the Norman Conquest, with dates, and the names of the English monarchs in whose several reigns they occurred.

2. What discoveries in the New World have been most useful to the inhabitants of England? Give your reasons.

3. What physical advantages have the people of England over other European nations?

SECTION V.—1. Write a short memoir of any celebrated Englishwoman.

2. Name, under separate heads, Englishwomen celebrated for their wit, beauty, misfortunes, benevolence, knowledge, or fortitude.

3. What good effects may be expected from well-written biography, and what mischief may arise from such a subject carelessly or untruly written? If you can, give instances of either kind.

GEOGRAPHY.

SECTION I.—1. Show by examples, the difference between Physical and Political Geography.

2. Explain and illustrate the terms "earth's crust;" "a square mile;" "chain of mountains;" "landes;" "steppes;" "simoom;" "sirocco;" "geyser;" "volcano."

3. Give an account (suitable for the instruction of pupil teachers in their last year of apprenticeship) of tides.

SECTION II.—1. Draw a map of England; its rivers, mountains, and principal ports.

2. Draw a map of Hindoostan, marking Calcutta, Bombay, Madras, Delhi, the Ganges, the Indus, the Himalayas.

3. Draw a map of Europe as divided into states, and mention the characteristic of each which you consider to be the most striking.

SECTION III.—1. Name the most important groups of islands and their situation.

2. State what causes tend to alterations in the earth's surface.

3. State the differences in the appearances of the coast-lines of the several continents, and the effects upon the civilization of the inhabitants.

SECTION IV.—1. Write notes of a lesson on

1. The physical features of England; or,
2. The colonies of Great Britain.

SECTION V.—Where are the following places situated:—Plymouth; Edinburgh; Dublin; Paris; Constantinople; St. Petersburgh; Calcutta; Mecca; Nankin; Cape of Good Hope; Cape Horn; Australia; St. Francisco: New York; Rio Janiero?

Make any one of them the subject of notes for a lesson in descriptive Geography.

DOMESTIC ECONOMY AND NATURAL HISTORY.

SECTION I.—1. Describe the process of making bread.

2. What parts of dress are made from wool, flax, and cotton? What are those substances called when manufactured for clothing? Give an account of the process by which each of them is prepared.

3. Describe the process of salting beef and pork.

4. How are salted meats cooked? Why so?

SECTION I.—1. Name the more familiar ornamental garden plants; their seasons, and any uses to which they may be turned.

2. Name the familiar garden fruits and vegetables in their order of succession through the year. Which of them are found wild in this country. Class them under such heads of preparation—(baking, preserving, &c.)—as occur to you.

3. Write the notes of a lesson on the use of each of the common gardening implements.

SECTION III.—1. Give a receipt for mustard poultice. In what cases would you apply it?

2. Give a short list of familiar domestic medicines; their nature and uses, and from what countries they are obtained.

3. Write a letter of general directions and advice to a friend about to be occupied in a sick room.

SECTION IV.—1. Write the notes of a lesson on the Dog and the Wolf, as members of the same natural family.

2. To what class of animals does the Whale belong? Give your reasons.

3. Name, generally, the animals and plants of the earth according to their geographical distribution. Which are common to all climates?

EXAMINATION PAPERS, ROYAL NAVAL SCHOOL, GREENWICH HOSPITAL.

MIDSUMMER, 1851.

Upper School.—1st Class.

SECTION I.—1. Divide 1·68 by ·024; find the value of ·655 of a day; and reduce 12*s*. 6¾*d*. to the decimal of 1*l*.

2. Find the vulgar fraction which is equivalent to the recurring decimal ·2′96′; and extract the square root of 187·4161.

3. The price of ·0625 lbs. of coffee being ·4583*s*., what is the cost of ·075 of a ton?

SECTION II.—1. What is the difference of longitude between Maskelyne's Isles, longitude 167° 59′ E., and Olinde, longitude 35° 5′ W?

2. Multiply 5386 by 2753 by logarithms; divide their product by 6372, and extract the cube root of the quotient.

3. The base of a right-angled triangle is 156 feet, and the angle at its base 52° 37′; find the lengths of its vertical side, and its hypothenuse.

Section III.—1. If two angles of a triangle be equal to each other, the sides also which subtend the equal angles shall be equal to each other.

2. If a straight line fall upon two parallel straight lines, it makes the alternate angles equal to each other: and the exterior angle equal to the interior and opposite upon the same side: and likewise the two interior angles upon the same side together equal to two right angles.

3. To describe a square that shall be equal to a given rectilineal figure.

Section IV.—1. In a circle the angle in a semicircle is a right angle.

2. In a right-angled triangle, if a perpendicular be drawn from the right angle to the base, the triangles on each side of it are similar to the whole triangle, and to each other.

3. Shew that in a parallelogram the sum of the squares of the diagonals is equal to the sum of the squares of all the sides.

Section V.—Solve one of the following equations.

$$1.\quad \frac{2x-3}{3} - \frac{10x-4}{18} = -1.$$

$$2.\quad ax + b^2 = \frac{ax^2 + ac^2}{a + x}$$

$$3.\quad 12y - y^2 = 35$$

$$4.\quad \frac{x+4}{x-3} - \frac{2x-3}{x+4} = \frac{59}{8}.$$

Section VI.—1. The sum of 2500*l.* is to be divided between two brothers, so that for every pound one receives, the other receives four pounds; what does each receive?

2. What two numbers are those whose sum is 7, and the difference of their squares 21?

3. The cornice of a square room costs 8*d.* per foot in length, and the ceiling 7*d.* per square foot: the whole cost of the ceiling and cornice is 3*l.*; what are the dimensions of the room?

Section VII.—Prove the following formulæ of plane trigonometry.

$$1.\quad \frac{a}{b} = \frac{\operatorname{Sin} A}{\operatorname{Sin} B},$$

$$2.\quad \operatorname{Sin}(A + B) = \operatorname{Sin} A \operatorname{Cos} B + \operatorname{Sin} B \operatorname{Cos} A,$$

$$3.\quad 2\operatorname{Cos}^2\frac{A}{2} = 1 + \operatorname{Cos} A \qquad 2\operatorname{Sin}^2\frac{A}{2} = 1 - \operatorname{Cos} A.$$

A sentence will be read to you which you must write out with careful attention to the spelling and penmanship.

1. Draw a map of the Baltic Sea; show the positions of the chief towns upon its shores, and give some account of their export and import trade.

2. Give some account of the north of Italy, and illustrate it by a map.

3. Parse the following sentence:—

"He desired them to disclose their plans to him as a friend."

4, How is it known that the earth is not an infinitely extended plain, as it would seem to be? Give one reason, and that the simplest.

5. Explain the phenomena of the seasons.

6. What principal change would appear in the heavens to a person who watched them at the same place night after night for a year?

Upper School.—2nd Class.

A sentence will be read to you, which you must write down carefully and spell correctly.

SECTION I.—1. Add together $\frac{4}{9}$ and $\frac{3}{7}$, and prove the methods you employ.

2. Find the values of the following expressions:—

$$\frac{3}{7} + \frac{5}{12} - \frac{7}{8} + 2\frac{1}{3}, \quad \frac{\frac{2}{3} + \frac{5}{7}}{\frac{7}{9} - \frac{4}{11}}, \qquad \frac{4\frac{1}{3} + 3\frac{1}{5}}{4\frac{1}{2} - 2\frac{3}{7}},$$

$\frac{7}{15}$ths of a pound + $\frac{11}{14}$ths of a guinea.

3. By selling an article for 6*l.*, I cleared $\frac{7}{5}$ of what it cost me. What did it cost me?

SECTION II.—Correct the following expressions, assign grammatical reasons for the corrections you make, and parse the last sentence.

"Him and I went together." "When I goes home." "He who I see'd there this morning I shall see again."

SECTION III.—1. Draw a map of South America, and show the positions of its principal sea-ports, and the directions of its principal rivers and mountain-ranges.

2. Draw a map of British India, showing the different provinces which compose, and its chief cities.

SECTION IV.—1. Add together $5a + 3x - 7(a - b)$ and $4a + 2b - 2x$.

2. Subtract $12x - 5d + 4b + 3a$ from $2x - 3a + 8b - 5c + 6d$,

3. Multiply $a - 4ax + 2x^2$ by $a^2 - ax - x^2$ and $a^m - x^m$ by $a^n + x^n$.

4. Show that if $-b$ be subtracted from a, the result is $a + b$.

SECTION V.—Solve the equations:

1. $14x - 3x + 10 = 6x + 30$

2. $3bx + a = 2ax + 4c$

3. $x + \frac{x}{2} + \frac{x}{4} = 44$

4. $x + \frac{3x - 5}{2} = 12 - \frac{2x - 4}{3}$

Upper School.—3rd Class.

A sentence will be read to you, which you will write down carefully and spell correctly.

SECTION I.—1. Subtract 9*l.* 0*s.* 11¾*d.* from 900*l.* 1*s.* 3½*d.*

2. How much money must I add to 340*l.* 7*s.* 9*d.* to make up the sum of 500*l.*?

3. Multiply 5*l.* 17*s.* 9¾*d.* by 7.

4. Divide 23*l.* 11*s.* 9½*d.* by 11.

SECTION II.—1. How many tons are there in 27,000,000 lbs. avoirdupois?

2. A train travels at the rate of 25 miles an hour; how far does it travel every minute?

3. How many persons can receive 4*s.* 6*d.* each, out of 4*l.* 19*s.* 6½*d.*?

SECTION III.—1. If seven men earn 3*l.* 10*s.* in three months, what does each man earn in a month?

2. What must a person's annual income be, in order that he may spend daily 1*l.* 11*s.*, and lay by 434*l.* 5*s.* at the year's end?

3. What is the carriage of 5 hogsheads sugar, each 5 cwt. 3 qrs. 21 lbs., at 12*s.* 6*d.* per ton?

SECTION IV.—Draw an outline map of Africa.

SECTION V.—Correct the spelling of the following sentence:—

"He fell in unexpektedly with a large boddy of Lasedemonian trupes heded by both the kings. His retrete was intursepted; and in making an obstinate diffence, being stunned by a blo on the head, he was taken prisner with about fifty of his bande."

Section VI.—Correct the grammatical construction of the following sentence, and give reasons for the corrections you make?

" Him who you speak of, has acted very dishonourable, and his cheerfulness has forsook him."

Upper School.—4th Class.

A sentence will be read to you, which you are to write down carefully, and spell correctly.

Section I.—What is a noun? How many cases have nouns, and what are they? Decline the noun " boy." State what are the parts of speech in the following sentence :—

" Our Christmas holidays will soon begin."

Section II.—Draw a map of Palestine.

Section III. —Add together 57,809, 5,236, 52, 911,005. Subtract 520,976,325 from 610,863,102. Multiply 16,734 by 3004. Divide 325,000 by 85. Divide 980,263,711 by 809.

Section IV.—Reduce 497*l*. 12*s*. 8*d*. to farthings, and 2,300 pence to pounds. Reduce 59 tons 11 cwt. 7 qrs. 8 lbs. to lbs., and 23,456 feet to miles.

Section V.—Add together 5*l*. 16*s*. 3¼*d*., 19*s*. 8½*d*., 3*l*. 12*s*. 4*d*., and 2*l*. 0*s*. 0½*d*. Multiply 9*l*. 7*s*. 8*d*. by 11, and 2*l*. 8*s*. 7¾*d*. by 23. Divide 1*l*. 0*s*. 0*d*. by 7, and 59*l*. 11*s*. 11½*d*. by 27.

Section VI. —At 7*l*. 4*s*. 3*d*. per cwt. what is the cost of 3 lbs of raisins? What is the cost of 365 bottles of wine at 2*l*. 13*s*. 6*d*. per dozen?

Nautical School.

Section I.—1. Prove that equiangular triangles have the corresponding sides about their equal angles in the same proportion.

2. Show that if a straight line stand at right angles to two other straight lines at their point of meeting, it is also at right angles to the plane passing through them.

3. " Stays" and " shrouds" are made by twisting together four " readies" and a " heart." In a given circle to describe five circles touching each other; four of which shall touch the given circle, and the fifth be concentric with the given circle, and touch the other four.

Section II.—Solve one of the following equations, viz.,

1. $3x - \frac{169 - 3x}{x} = 29.$

2. $\sqrt{x^5} + \sqrt{x^3} = 6\sqrt{x}$

3. $x^{-1} + x^{-\frac{1}{2}} = 2.$

4. $\left\{\begin{array}{l} x^3 + y^3 = 1001 \\ x + y = 11 \end{array}\right\}$

Section III.—1. A farmer buys a flock of sheep at 20*s*. each, and after having kept them until the expenses incurred upon them amounted to 10*l*. (during which time he has lost ten of them,) he finds they have cost him 30*s*. each. How many were there in the flock?

2. The food of part of the inmates of a union-house is made of wheaten flour, and that of the rest of oatmeal. When the whole number of inmates is n, and they eat a sacks of flour per day and b of oatmeal; and when the number is N, they eat A sacks of flour per day and B of oatmeal. How many will one sack of flour feed for one day, and how many one sack of oatmeal?

3. A passenger train and a luggage train, the one travelling at 10 miles per hour less speed than the other, set out at the same time, the one from London and the other from Carlisle, 210 miles apart, and pass one another at a certain station on the road. The passenger train sets out from Carlisle

to return, two hours after the luggage train sets out to return from London; and it is observed that they pass one another at the same station. At what rate do they travel, and how far from London is the station?

SECTION IV.—Prove one of the following formulæ of plane trigonometry.

1. $\text{Tan A} = \frac{\text{Sin A}}{\text{Cos A}}$, $\text{Sec A} = \frac{1}{\text{Cos A}}$

2. $\text{Cos (A + B)} = \text{Cos A Cos B} - \text{Sin A Sin B}$

3. $\text{Tan } \frac{1}{2} \text{A} = \frac{\text{Sin A}}{1 + \text{Cos A}}$, $\text{Tan } 22\frac{1}{2}^{\circ} = \frac{1}{1 = \sqrt{2}}$

4. $\text{Sin } \frac{1}{2} \text{ A} = \sqrt{\frac{(\text{S} - b)\ \text{S}\ c}{bc}}$

SECTION V.—Prove one of the following formulæ of spherical trigonometry.

1. $\text{Cos } c = \text{Cos } a \text{ Cos } b + \text{Sin } a \text{ Sin } b \text{ Cos } C$

2. $\text{Cos } \frac{1}{2} \text{ C} = \sqrt{\frac{\text{Sin S . Sin (Sin} - c)}{\text{Sin } a \text{ . Sin } b}}$

3. $\text{Tan } \frac{1}{2}(\text{A} - \text{B}) = \frac{\text{Sin } \frac{1}{2} (a - b)}{\text{Sin } \frac{1}{2} (a + b)} \text{ Cot } \frac{\text{C}}{2}.$

SECTION VI.—1. Show how the distance of two inaccessible objects, C and D, from one another, may be determined by observations made at the extremities of a given base line, A B, from which the objects are visible.

2. Investigate a rule for computing the sun's azimuth from an observed altitude.

3. Investigate a rule for determining the latitude by altitudes observed near the meridian; and show how this rule is to be applied to the mean of any number of observed altitudes.

SECTION VII.—1. Explain Mercator's projection, and show that the distance of any two places on the globe is to the projected distance as the difference of latitude of the two places is to the projected difference of latitude.

3. Explain fully the method of determining the latitude and the time by two altitudes of the sun and the intervening time, and apply corrections for the change of declination and the motion of the ship.

Notices of Books.

HAND-BOOK OF NATURAL PHILOSOPHY AND ASTRONOMY. BY DIONYSIUS LARDNER, D.C.L., FORMERLY PROFESSOR OF NATURAL PHILOSOPHY IN UNIVERSITY COLLEGE, LONDON. FIRST COURSE: MECHANICS, HYDROSTATICS, HYDRAULICS, PNEUMATICS, SOUND, OPTICS. (London: *Taylor, Walton, and Maberley.*)

THE STEAM-ENGINE; A POPULAR ACCOUNT OF ITS CONSTRUCTION, ACTION AND HISTORY; AND A DESCRIPTION OF ITS VARIOUS FORMS. BY HUGO REID. Third Edition, Revised and Improved. (London: *Groombridge and Sons.*)

GLEIG'S SCHOOL SERIES. HYDROSTATICS, HYDRAULICS AND PNEUMATICS FOR THE USE OF BEGINNERS. BY THOMAS TATE, F.R.A.S., (London: *Longman and Co.*)

THE first of these popular books is from the pen of one who is well known in the scientific world by his various publications, but especially by "The Cabinet Cyclopædia," which he conducted with great ability. It would be difficult to select a person better qualified than Dr. Lardner for the task of compiling a work on natural philosophy and astronomy, and the Hand-book now before us fully sustains his high reputation as an elementary writer. It is drawn up for "the satisfaction of those who desire to obtain a knowledge of the elements of physics without pursuing them through their mathematical consequences and details," and its object is to supply "that information relating to physical and mechanical science, which is required by the medical and law student, the engineer, and artizan, by those who are preparing for the universities, and, in short, by those who have already entered upon the active pursuits of business, are still desirous to sustain and improve their knowledge of the general truths of physics, and of those laws by which the order and stability of the material world are maintained."

Following Euclid's excellent example, Dr. Lardner divides his first course into nine books, thus:—I. Properties of Matter.—II. Of Force and Motion.—III. Theory of Machinery.—IV. Mechanical Properties of Liquids.—V. Mechanical Properties of Air.—VI. Specific Gravity. —VII. Theory of Undulation.—VIII. Sound.—IX. Light. These books are divided into numerous chapters, but to give anything approaching to a fair analysis of this valuable work would be to transcribe the whole of the ample table of contents prefixed to the volume, or the index with which it is closed. Suffice it to say, that it contains an immense mass of the most important information relating to the concerns of material life, and that the various experimental illustrations of the physical truths with which it abounds are rendered clear and intelligible by means of upwards of *four hundred diagrams.* We have much pleasure in recommending Dr. Lardner's "Hand-book of Natural Philosophy;" it is one of the best popular scientific works that has yet appeared, and the numerous experimental illustrations are described in language unusually clear and expressive, and intelligible to the lowest capacity.

The author has evidently availed himself of all the most recent discoveries and inventions, as its pages are enriched with much new and valuable matter. As an instance, Dr. Lardner mentions an instrument of great ingenuity and beauty, called the *Sirene,* which has been supplied by the invention of M. Caguard de la Tour, for the purpose of ascertaining the whole number of vibrations corresponding to any proposed musical sound. By means of this instrument, the rate at which wings of insects move may be ascertained. The instrument is brought into unison with the sound produced by the insect, and as in the case of any other musical sound, the rate of vibration is indicated. In this way it has been ascertained that the wings of a gnat flap at the rate of 15,000 times per second. The pitch of the note produced by this insect in the act of flying is, therefore, more than two octaves above the highest note of a seven-octave pianoforte. Instead of adverting to other instances of experimental illustrations, we can only reiterate our cordial approval of Dr. Lardner's "Hand-book of Natural Philosophy," and we trust that his *second course,* which is announced to embrace Heat, Electricity, Magnetism, and Astronomy, will equally merit the same commendation.

The little work on "The Steam Engine," by Hugo Reid, is "designed to furnish to the general reader such an account of this great machine as may be easily understood by those who are previously unacquainted with the subject." The general laws of Heat and Pneumatics, on which the action of the engine depends, are first detailed, and its construction and mode of action are then explained at considerable length. The author gives a sketch of the origin and progress of the steam engine, as well as a short memoir of its inventor, the celebrated James Watt. This work may be advantageously consulted by those who have not access to larger and more expensive works on the subject.

Mr. Tate's little book on Hydrostatics, Hydraulics, and Pneumatics, will be found very useful to the class for which it is intended. Many pleasing experiments are introduced, together with several exercises on the different subjects. It forms one of the school series edited by Mr. Gleig, and is well adapted to the capacities of beginners, the physical truths being illustrated in a simple and perspicuous manner.

SELECT ENGLISH POETRY, WITH PROSE INTRODUCTIONS, NOTES, AND QUESTIONS, TO WHICH IS ADDED AN ETYMOLOGICAL APPENDIX OF GREEK, LATIN, AND SAXON ROOTS, FOR THE USE OF SCHOOLS AND PRIVATE READING. BY EDWARD HUGHES, F.R.G.S., HEAD MASTER OF THE ROYAL NAVAL LOWER SCHOOL, GREENWICH HOSPITAL. (London: *Longman, Brown, Green, and Longmans.* 1851.)

THE use of poetry, as a means of education, claims a higher sanction, and is grounded upon better authority, than either human opinion or universal practice can give it. The Spirit of God and the Church have consecrated poetry, and have appropriated it in a peculiar manner to the service of the Deity. Poetry and music have ever been inseparable attendants on religion, and have been so employed in all ages, by all nations, savage and civilized; and the reason is evidently this, that of all external means these exert the greatest influence on mind and character. As Mr. Hughes truly observes, there is nothing better calculated than good poetry "to evoke the social sympathies, to embue with the love of the beautiful in nature, in art, and in action, to fill the young heart at once with patriotism and philanthropy, and to draw out all the faculties which belong to man as man, and which bind him to his race." But to effect this poetry must be really good, or its influence will be equally pernicious to mind and morals. Hence the great Athenian philosopher proposed the banishment of all poets from the commonwealth, thinking it even preferable to forego the benefits of good poetry than to incur the dangerous infection of bad — a striking proof of the estimation in which this sacred art was held by the philosophers of antiquity. We cannot withhold from Mr. Hughes the tribute of praise due to him for his judicious selection of English poetry. With but very few exceptions, the numerous and various pieces in this publication are, we believe, in every way calculated to answer the purpose for which they were compiled, viz. "to develop the intellectual and imaginative faculties, to soften the temper, to refine the manners, to correct the heart, and generally to enlarge the mind." We recommend it as a very useful and instructive manual for the young, for those especially who have entered what are called their "teens" and are fond of reading. "The peculiarity in this selection is the plan of introducing every poem with an appropriate piece of prose. To a considerable number of the poems there are questions subjoined, principally with the view of directing the attention of the student to the more difficult passages." There is also a useful vocabulary at the end, containing words of Saxon and classic derivation. Upon the whole we think the work a valuable addition to our school series, and well adapted to the purposes of education.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 105.—*Proposed by Mr. W. H. Levy.*

A AND B can do a piece of work in 14 days, and B and C in 15 days: in what time can A and C do it, allowing that A can do $1\frac{1}{4}$ time the work of B?

Answered by Prismoid, Mr. Morris, Mr. O'Sullivan, Mr. Scott, Mr. Dyer, Mr. Sothern, Mr. Salter, and J. P.

Part done by A and B per day $= \frac{1}{14}$.

But A does $\frac{5}{4}$ times the work of B, therefore if we suppose their work divided into 9 equal portions, A would do 5 of them, and B 4 of them:

$\therefore$ Part done by A per day $= \frac{5}{9}$ of $\frac{1}{14} = \frac{5}{126}$,

and part done by B per day $= \frac{4}{9}$ of $\frac{1}{14} = \frac{4}{126}$.

$\therefore$ Part done by B and C per day $= \frac{1}{15}$;

$\therefore$ Part done by C per day $= \frac{1}{15} - \frac{4}{126} = \frac{22}{630}$;

$\therefore$ Part done by A and C per day $= \frac{5}{126} + \frac{22}{630} = \frac{47}{630}$.

$\therefore$ No. days $= 1 + \frac{47}{630} = \frac{630}{47} = 13\frac{19}{47}$.

QUES. 106.—*Proposed by Mr. J. Reed.*

A gentleman dying, left a circular estate of 1000 acres, to be divided among his four sons, four daughters, and widow, in the following manner:—The four sons were to have as much as should be contained in four equal circles as large as could be described (without cutting each other) within the largest circle; the four daughters were to have the four equal pieces remaining between the smaller circles and the larger, and the widow the centre part between the four sons. Required the number of acres each son, each daughter, and widow possessed?

Answered by Mr. Brookes, Mr. Sheppard, Mr. Hill, Mr. Levy, Mr. Herbert, and Mr. Righton.

Here Radius of the large circle $= \sqrt{\frac{10000}{3 \cdot 1416}} = 56 \cdot 4189$ chains.

If the centres of the four inscribed circles be joined, the lines will form a square, the diagonal of which will pass through the centre of the large circle. Let x = the radius of each inscribed circle; then

the side of the square $= 2x$,

$\therefore$ the diagonal of the square $= \sqrt{8x^2} = 2x\sqrt{2}$.

Now we have

Diam. large circle = 2 radii small circle + diagonal sq.;

$$\therefore 56 \cdot 4189 \times 2 = 2x + 2x\sqrt{2},$$

$$\therefore x = \frac{56 \cdot 4189}{1 + \sqrt{2}} = 56 \cdot 4189 (\sqrt{2} - 1)$$

$$= 23 \cdot 369 \text{ chains.}$$

$$\therefore \text{Area small circle} = \frac{23{\cdot}369^2}{10} \times 3{\cdot}1416 = 171{\cdot}572 \text{ acres.}$$

which is each son's share.

Now the central portion, or the widow's share, will be equal to the area of the square, formed by joining the centres of the four circles, less by the area of one of these circles, that is,

$$\text{Widow's share} = \frac{2 \times 23{\cdot}369)^2}{10} - 171{\cdot}572 = 46{\cdot}879 \text{ acres.}$$

$$\therefore \text{Each daughter's share} = (1000 - 46{\cdot}879 - 4 \times 171{\cdot}572) \times \tfrac{1}{4}$$
$$= 66{\cdot}708 \text{ acres.}$$

LIST OF MATHEMATICAL ANSWERS.

T. Laurie, Oundel, ans. 105, 106; T. Wilson, Sebergham, ans. 105, 106; E. Carthew, Roehampton, ans. 105; Prismoid, ans. 105, 106; C. Watson, Preston, ans. 105; J. Bolton, Old Malton, ans. 105, 106; C. Linton, Burton on Trent, ans. 105; W. Cowper, ans. 105; G. Morris, Gosport, ans. 105, 106; G. Barnacle, Empingham, ans. 105, 106; J. Sheppard, Gillingham, ans. 105, 106; D. O'Sullivan, Preston, ans. 105, 106; J. B. Bayley, Uttoxeter, ans. 105; S. Dyer, Wanstead, ans. 105, 106; J. Scott, Low Moor, ans. 105, 106; T. Sothern, Burton Wood, ans. 105, 106; W. L. Brown, Ightham, ans. 105; W. Davies, Coniston Cold, ans. 105, 106; J. Rowlatt, Evercreech, ans. 105; H. Hill, Mortlake, ans. 105, 106; J. Brokes, Manchester, ans. 105, 106; J. O. Clazey, Durham, ans. 105, 106; P. T, ans. 105, 106; C. Smith, Billericay, ans. 105, 106; W. H. Levy, Shalbourne, ans. 105, 106; John Reed, Brendon Week, ans. 105, 106; A. M. ans. 105, 106; J. Salter, Durham, ans. 105, 106; J. Herbart, Woolton, ans. 105, 106; W. Righton, ans. 105, 106.

NEW QUESTIONS,

To be answered in our Number for October, 1851.

Ques. 107.—*Proposed by Sam. Dyer.*

$$\text{Given } 82 - \frac{81}{3^{3x}} = 3^{3x} \text{ to find } x.$$

Ques. 108.—*Proposed by Prismoid, Tewkesbury.*

Six equal circles are described within a given circle, in contact with one another and the given circle; required the area of each.

Ques. 109.—*Proposed by Mr. Herbert.*

At what time between 11 and 12 o'clock, are the hands of a clock approaching the 12 with the same velocity?

Ques. 110.—*Proposed by Mr. Righton.*

Determine the segment of a sphere so that the ratio of its solidity to its convex surface may be a maximum.

To Correspondents.

J. N.—We cannot give you the information you ask for.

ON THE GENITIVE CASE.

[The following remarks on the Genitive Case are taken from an Essay on English Orthography, by Archdeacon Hare, published in the "Philological Museum," in 1832. They are referred to in an article in our June number, and are now printed here by permission.]

Of our Anglosaxon cases we kept but one, the genitive, and that only in particular constructions; for this genitive must always precede the noun it depends on. Thus, becoming unused to inflexions, we lost the perception of their meaning and nature; and the precursors of Horne Tooke in the sixteenth century fancied that the *s* of the genitive stood for *his*. Under this notion *his* was often written at length, especially where the noun ended in *s*. At what period this errour was first broacht, and how it crept into vogue, my own very limited acquaintance with our ancient writers does not enable me to determine. I believe it is not found in Chaucer or Maundeville, and probably not in the other writers of the same age. The earliest instances I have noticed belong to the latter half of the sixteenth century. In the Palace of Pleasure (1575) we find *Christe his secretes*, Vol. I. p. 44 (ed. Hazlewood), *Rinaldo his servaunt* p. 115, *Landolpho his barque* p. 125, *Andreuccio his parentes* p. 130, *without any knowledge of the prince his being there* p. 169, *Didaco his sword*, p. 220, *sir Stricca his garden* p. 322. So in the Mirrour for Magistrates: *by Mars his force*, King Albanact 10, *to Hercules his pillars*, 35, and so on. In Gerarde's Herbal this corruption occurs perpetually. The title of Silvester's translation is *Dubartas his Divine Weekes;* that of Purchas, *Purchas his Pilgrimes*. Even Spenser, though one is loth to detect errour in a writer to whom the language owes so much, has *Pegasus his kynd*. I, 9. 21, *Mars his bed*, III. 6. 24, *Satyrane his chaunce*, III. 9. 27, *Satyrane his steed*, IV. 4. 40, *Brute Silvius his sonne*, III. 9. 48. This led our grammarians long ago to protest against the blunder. Charles Butler, one of the earliest of them, in his English Grammar publisht in 1634, says: "The Teutonik termination of the genitive some refined wit hath turned to *his*, perswading himself that *s* is but a corrupt abbreviation of *his*, which hee thought necessary to restore: and therefore hee wil not write *my masters son is a child*, but *my master his son is a child;* which is just as good as if in Latin hee would say, not *heri filius*, but *herus ejus filius, est infans*." Ben Jonson too, in his Grammar, which did not come out till 1640, after his death, says: "Nouns ending in *x*, *s*, *sh*, *g*, and *ch*, in the declining take to the genitive singular *i*, and to the plural *e;* as *rose*, *bush*, *age*, *breach;* which distinctions not observed brought in first the monstrous syntax of the pronoun *his* joining with a noun betokening a possessor." Yet in spite of these protests it has been so much the fashion for Englishmen to know nothing about their own tongue, that instances of this "monstrous syntax" are to be found in many even of our best and purest writers. Milton indeed, like Jonson, seems to have kept clear of it; but Randolph, Jonson's adopted son, forgot his father's precept concerning it: Clarendon talks of *Mr. Hobbes his friends*, *Mr. Hobbes his Leviathan:* in Dryden's letters, in printing which Malone has rightly followed the poet's own way of spelling, the same corruption occurs repeatedly: Otway, Pope, Congreve, Farquhar use it: the argument of Hudibras begins with *Sir Hudibras his passing worth*; and shortly after, I. 1. 439, we come to

> "As Cæsar's horse would kneel and stoop,
> (Some write) to take his rider up;
> So *Hudibras his* ('tis well known)
> Would often do to set him down."

Nay, Addison in the Spectator, No. 135, asserts that "the single letter *s* on many occasions does the office of a whole word, and represents the *his* and *her* of our forefathers:" though, as Lowth observes, his own words carry their confutation along with them; and a little reflexion would show that *s* can hardly have usurpt the place of *her*. In a Grammar indeed by Joseph Aickin, publisht in 1693, an attempt is made to get over this difficulty. "The casual preposition *of* (he says) is sometimes changed into an adjective possessive; as, *the King's son*, for *of the King*, where *s* is put for *his*; *Jane's daughter*, where *s* is put for *hers*: *hell's darkness*, where *s* is put for *its*." It never struck him to ask what *his* and *hers* and *its* were; or that they were originally only the genitives of *he*, *her*, *it*. This erroneous persuasion had become so inveterate, that the republisher of Ben Jonson in 1692, taking upon him to correct his author, audaciously and tacitly put in the room of the passage before cited: "To the genitive cases of all nouns denoting a possessor is added *'s* with an apostrophe, thereby to avoid the gross syntax of the pronoun *his* joining with a noun; as the *Emperor's court*; not the *Emperor his court*." Thus foisting in his own conviction that *s* stands for *his*, and yet retaining the expression "the gross syntax," which is directly opposed to it, he has made old Ben write sheer nonsense, in a chapter which even in the old edition is far from correct.

In Wallises Grammar one is startled at first by the assertion that noun substantives in English have no distinction of gender or case: which in a true English spirit he boasts of as an advantage, because it saves us a world of trouble: as if the same might not be said of ignorance; or as if anything good were to be got at without trouble. But does Wallis then entirely pass over our genitive case? He speaks of it indeed, but under another name, and calls it a positive adjective: "which may be formed from any substantive, whether singular or plural, by adding *s*, or if needful for the sake of the sound, *es*. Its meaning is the same as that of the preposition *of*, when it answers to the Latin genitive: as *mans nature*, *the nature of man*, *natura humana* vel *hominis*; *mens nature*, *the nature of men*, *natura humana* vel *hominum*. Here in the first place it strikes one that there is nothing in the nature of our adjectives analagous to this needless variation between the two so-called possessives, *mans* and *mens*. But how is a *mans nature* to be reconciled with the character of our adjectives? and what is *a thousand mens swords*? is it *mille humani enses*? The assumption is altogether arbitrary and groundless; and taken up merely for the sake of supporting the paradox, that we have no cases. Had Wallis been acquainted with our old language, a knowledge which our grammarians and lexicographers have strangely thought it not worth their while to acquire, he would have found that we had just as good, or as troublesome, cases as the Latin or Greek. But in comparing the disorder of our own with the regularity and symmetry of the ancient languages, one is evermore reminded how to him that hath is given, and he hath more abundance; while from him that hath not is taken away even that he hath.

That the final *s* stands for *his* however, Wallis positively denies: "for (he says) it is joined to feminine nouns, and to plurals, where *his* would be a solecism; and it is found in the possessive *ours, yours, theirs, hers*, where nobody can dream that *his* is contained: and indeed *his* itself, as well as *whose*, are only *hee's, who's*, *his* being written for *hees* as *bin* is for *been*." Yet to such a pitch was the confusion on this point carried, that the compiler of the index to Stow's Survey of London in the edition of 1633 writes *St. James's his Parke*, though Stow in the text wrote *St. James Parke*. In our Liturgy too, as every one knows, we read *Christ his sake*: for though the ancient spelling of our prayerbooks has been modernized, and some slight changes made, such matters, from our recklessness about grammar, are left to the ignorant, and this gross blunder is still allowed to keep its place. Its introduction in the Prayer for all Sorts and Conditions of Men, contrary to the analogy of the Collects for Quinquagesima, and for the fourth and twenty-fourth Sundays after Trinity, is to be accounted for from the prayers being one of the additions made on the accession of Charles II.: the same blunder occurs repeatedly in the Forms of Prayer framed at the same time for Charles the Martyr, and for the Restoration. The passages in our Bible on the other hand where the same errour is pointed out by Lowth.—*Asa his heart*, 1 Kings xv. 14; *Mordecai his matters*, Esther III. 4,—have since been altered: here again, though the corruption is found in all the old editions of the versions made under James I. most of the earlier translations are without it: in Cranmer's Bible of 1549 we read *Asaes harte*: in Tyndales of 1549, *Asas*: in Barkers of 1582 and 1616, *Asas* and *Mordecais*: and such is the old and right way of writing our genitives.

For it was this very mistake about the origin of the final *s*, that gave rise to that useless and unmeaning practice, with which all our modern books are disfigured, of prefixing a mark of elision to it. There is no better ground for placing such an ugly mark over the genitive than over the nominal plural: where the vowel which used to precede the *s* has been omitted in the one case, it has also been omitted in the other; and that no confusion or ambiguity of the slightest moment is obviated by the use of such a mark, anybody may satisfy himself by reading our old authors in the original editions, or in the reprints where the old orthography has been retained. For in our old books the genitive is written without any mark of the sort. In Hearne's edition of Robert of Gloucester indeed one finds it: but no doubt it owes its introduction to a piece of carelessness on the part of the editor, who in other respects rightly follows the orthography of his author's age. Even so late as at the publication of Paradise Lost, the apostrophe was only introduced in a few peculiar cases. In the early editions of Milton we read "Of *Mans* First Disobedience;"—

"Yet to their *Generals* Voyce they soon obeyd
Innumerable, as when the potent Rod
Of *Amrams* son in *Egypts* evill day;"—

and so on. The mark of elision is only set over such words as *Siloa's* i. 11, *Gaza's* 465, *Ely's* 595, *Rhea's* 513. So, in his Minor Poems, over *Cynthia's*, *Ida's*, *Jehovah's*, *Hebe's*, *Pluto's*, *the shallow cuccoo's bill*. Thus even in the first folio we read "Violets dim, but sweeter than the lids of *Juno's* eyes, Or *Cytherea's* breath;" though in other cases no difference is made between the genitive and the plural. In these words, as in *do's* for *does*, the apostrophe took the place of an *e* that had been left out: for Spenser, who seldom uses such marks, wrote *Plutoes* i. 1. 37, *Unaes* i. 3. 2, *Junoes* i. 4. 17, *Sansfoyes*, i. 4. 51, *Duessaes* i. 3, 27, *Archimagoes* i. 6. 2, *Cupidoes* ii. 6. 35: and for the same reason we find the nominative plural written *heroe's* in P. L. i. 552, *idea's* by Osborn p. 20, *juncto's* p. 70, *comma's* p. 150, *punctilio's* p. 168, *dilemma's* by Fuller, Holy State p. 66, *Penelope's* by Cartwright, Lady Errant i. 3:

> "'Cause they eat their sweetmeats
> In a black closet, they are counted faithfull,
> The sole *Penelope's* o' th' time, the ladies
> Of the chaste Web i' th' absence of their Lords."

And this accords with the practice of the Germans, who write *Grimaldi's*, *Sebastiani's*, equally for the genitive singular and the nominative plural; as they do *Shakspeare's*, *Sterne's*, *Kotzebue's*, to indicate that the *e* before the *s* belongs to the name, and is not the *e* of the genitive, which is omitted. Spenser however has *Caseiopeias* i. 3. 16, *Phædrias* ii. 6. 38, *Maias* iv. 3. 42, being restrained by the preceding vowel from inserting the *e*, as well as *Phebes* iv. 5. 14, *Niobes* iv. 7. 30, and since we in our days should never dream of inserting the vowel, the note of its being left out is quite useless. Other words should be written like *its* and *whose*, which are never *it's* or *who'se*. Indeed nothing but the mistake about *his* could have led us to commemorate the omission of a letter, which in most words has not been inserted these three hundred years, and in many, such as *time's*, *nature's*, never existed. "The genitive singular (says Johnson) is always written with a mark of elision, according to an opinion long received that *s* is a contraction of *his*." And the same account of its origin is given by Wallis: "qui autem arbitrantur illud *s* loco vocis *his* adjunctum esse, ideoque apostrophi notam semper vel pingendam esse vel saltem subintelligendam, omnino errant." It seems to have been in the age of Charles II. that this practice first became general; when the language, which always sympathizes with, and thereby becomes symptomatical of, the moral condition of a people, was in a state of general deterioration, which Dryden was hardly able to check, and the effects of which Swift found it difficult to crush; and when our very printers, who in early times, and even under Elizabeth, were mostly painstaking, reacht the highest degree of slovenliness.

Still more absurd is the mark of elision after the genitive plural. Milton wrote *parents tears*, P. L. i. 393: the *shearers feast*, Lyc. 817: which his editors print *parents' tears*, the *shearers' feast*. Now what in this instance has been left out? what does ' stand for? Or is it the purpose of a mark of elision to shew that nothing has been elided? It is well to have some reason for what we do, even in trifles. Wallis indeed asserts that the *s* of the plural is blended with that of the possessive, or that for the sake of euphony the former is elided, as the *Lords's House* for *the Lord's House*, the *Common's House* for the *Commons's House:* as if such words as *Lords's*, *Commons's*, had ever existed at any period of our language. It is only by an erroneous assimilation to the genitive singular that such plural genitives as *mens*, *womens*, *brethrens*, have been formed; for the Saxon genitive plural did not end in *s*. Still the corruption never went so far as to append an *s* to a plural in *s*. The authority of Wallis however led many writers in Queen Anne's time to spell the genitive plural in the same way as the singular: Gay's masterpiece for instance was at first called *The Beggar's Opera*. The present fashion of placing the apostrophe after the *s* is scarcely of a hundred years standing. In the first edition of Pope's Iliad, publisht in 1715, we find,

Of all the Kings, the *Gods* distinguished Care: I. 229:
Rang'd the wild Desarts red with *Monsters* Gore: I. 356:
The *Gods* Complaints, and Juno's fierce Alarms: I. 673:

Johnson too says, "Plurals ending in *s* have no genitives: but we say *womens* excellencies, and Pope writes

Weigh the *mens* wits against the *ladies* hairs."

So that at the time when he publisht his dictionary this mode of writing had not become current. Surely then there ought to be no scruple about getting rid of so modern and totally groundless an absurdity.

There may not be quite so strong reasons against our manner of writing the genitive of proper names ending in *s;* but it is a very objectionable practice, which produces such hideous unpronounceable words as *Venus's*, as if the very sound of her name were to betoken that she was of the seed of the serpent. Tyrwhitt in his Glossary to Chaucer, on the word *Markis*, has justly reprehended this practice, which was then a recent innovation, and he remarks that, if *Venus's* is to be pronounced as a trisyllable, we ought not to cut out the *e* of the old genitive, but to write at full *Venuses*. Landor indeed and others have preferred the form *Venusis*. This form of the genitive in *is* occurs in Gawin Douglas; but it is a Scoticism, like his plurals, *birdis*, *ilandis*, *fieldis*, and his third person of verbs, *rollis*, *upstertis*, *apperis*. The vowel of the genitive in the Anglosaxon was *e;* so was it in Chaucer's time, as appears from the very title of the *Knightes Tale*, or, to take a couple of instances, from

That *Cristes* gospel trewely wolde preche; C. T. 483:
That hadde a fire-red *cherubinnes* face: C. T. 626:
And thanked him with all hir *hertes* might: 1878.

If in Wiclif we find *i* perpetually substituted for *e*, and that not only in the genitive *Cristis*, in plurals,—as Gal. v. 19, "the *werkis* of the fleisch ben *witchecraftis*, *strivyngis*, *wraththis*, *chidyngis*, *sectis*, *manslaughtris*, *drunkenessis*, unmeasurable *etyngis*, and *thingis* lik to these"—but in such words as *undir*, *fadir*, *britheren*, *himsilf*, and many more, this is probably owing to his northern extraction. In the standard English the *e* kept its ground. In Cranmer's Bible the genitives *Goddes*, *Christes* occur frequently; so do such genitives as *Asaes;* which accord with those quoted above from Spenser; and though the genitive of proper names ending in *s* is mostly the same as the nominative, Maundevile, p. 111, writes *Cayphases hows.* Spenser in like manner says of Duessa, i. 8. 48, "she growing had behind a *foxes* taile." In Osborn we find, "through the *churches* dependance," p. 194; in Congreves's translation of Ovid's Art of Love, "Beauty is the gift of gods, the *sexes* pride;" in his translation of the Homeric hymn to Venus, "Delight of human kind, thy *sexes* pride." In our pronunciation too we make no difference between the genitive singular and the nominative plural: and that the pronunciation in ancient times was the same, is pretty clear, because in most of the instances in which we find the genitive written with *his* it is after names ending in *s*. The ordinary usage, however, of all our old writers agrees with that of Spenser and Milton, who write *Fair Venus sonne, Like Phœbus lampe, Morpheus train, Pelops line,* without any mark of elision. In Puttenham's Arte of English Poesie, iii. 5, we read: "So we say that Ciceros stile and Salusts were not one, nor Cesars and Livies, nor Homers and *Hesiodus,* nor *Herodotus* and *Theucidides,* nor *Euripides* and *Aristophones,* nor *Erasmus* and *Budeus* stiles." The apostrophe, which in our days is usually placed over such genitives, is so modern an innovation that it is never mentioned either by Wallis or Johnson in their Grammars. Our ancient practice moreover accords with that of the Germans in similar words, who, since they have given up the use of the Latin cases, regard names ending in *s* as indeclinable, and almost uniformly write *Atreus Enkel, Tantalus Sohn, Æschylos Agamemnon, Priamos Feind.* It is singular that so learned a philologer as Wolf should have allowed himself to be deluded by the English practice into writing *Aristophanes' Wolken, Horatius' Satiren.*

Hence we perceive that, according to the usage of earlier times, we have two forms for the genitive of nouns ending in *s;* one in which it is the same with the nominative, as may be further seen in the phrases, *for goodness sake, for righteousness sake,*—and in the similar one, *for conscience sake,* which from the resemblance of sound follows the same rule,—in all which the use of an apostrophe is a mere modern corruption; the other in which *es* is added to it. Of these two the latter, as agreeing with our mode of pronouncing such words, is clearly the preferable one: and for this reason we should do well if it were to be generally adopted. It might be objected indeed that, when a vowel stands before a single *s*, it is mostly pronounced long: but the same objection would apply to the nominative plural: if we write *geniuses, crocuses, Brutuses, Charleses,* for the latter, we may do so likewise for the genitive: nor is the above principle by any means universal, as may be seen from such words as *promises, purposes, metamorphoses, garrison, comparison, prophesy, hypocrisy, disappear, misapply.* That arrant absurdity too, the apostrophe subjoined to the genitive plural, ought to be immediately and utterly rejected. These two steps, as they relate to points which are not of very frequent occurrence, I have deemed it safe and advisable to take. With regard to the genitive singular, though there also it is desirable that the apostrophe should be left out, I have been withheld from omitting it by an unwillingness to innovate too far at once.

Nor indeed is it so offensive here, provided it be universally recognised that the final *s* of the genitive has nothing to do with *his*. For as no errour, however petty or insignificant, can be allowed to take root and run to seed, but a crop of noxious weeds is sure some time or other to sprout up from it, so this very mistake about the nature of our genitives has been in no slight degree injurious to the elegance of our style. There can be little doubt that this very mistake has, latently at least, been the main reason why, with the exception of proper names, and of words designating human beings, the use of the genitive has of late been almost confined to our poets: indeed many eminent prose-writers of the present day stiffen and encumber their style by avoiding it even in such. Sir James Mackintoshes History of England for instance, or, as according to his practice I should have called it, *the History of England of Sir James Mackintosh*, would be very much improved by the insertion of a few thousand genitives. Many persons nowadays write, *the Paradise Lost of Milton*, *the Macbeth of Shakspeare*, *the Principia of Newton*, *the Note of Porson on the Orestes*, *the marriage of Henry*: though everybody would say, *Milton's Paradise Lost*, *Shakspeare's Macbeth*, *Newton's Principia*, *Porson's Note on the Orestes*, *Henry's marriage*. Yet it is impossible to tell what is gained by a supernumerary article and preposition in a language already overburthened with them: and as an idiomatical is always an easy and graceful style, so every departure from idiom, every attempt to staylace the language of polisht conversation, renders our phraseology inelegant and clumsy. J. C. H.

ON CORPORAL PUNISHMENT.

No. IV.

It is of no slight advantage to be taught to bear the discipline of correction before the will becomes strong, and the pride towering. If this sort of submission is not very early inculcated, there springs up in some minds a strange intolerance of any sort of punishment, even the slightest. The self-esteem becomes sensitive to a degree almost amounting to disease; and the will, where a strong check has not been put upon it, and in good time too, positively rages against restraint, like a wild animal that dashes itself almost to death against the bars of its den. The adversaries of corporal punishment will sometimes represent it as causing this sort of desperation. The revolt, however, is not so much against this or that kind of punishment, as against the idea of punishment altogether: a brief confinement has been followed by suicide; nay, even in the lower classes, where circumstances have been the least calculated to foster pride, we not unfrequently meet with cases where self-destruction has been the consequence of a merely verbal rebuke. Almost all must indeed have been reproved at one time or other during their childhood, but unless they have been taught to bear something stronger than reproof, or even a timid and hesitating punishment, the time will come when even a rebuke will appear an intolerable degradation, or will be magnified by a too tender spirit into a monstrous evil.

But it is usual, by a disingenuous change of terms, to call a subdued will, a broken spirit. Truly the English of the present day have much reason to complain of the broken spirit of their ancestors (who, or at least, by far the greater number of them, were brought up on the old-fashioned system), unless to persevere, to conquer, and to *obey*, be the marks of this whip-branded slavishness of soul. The examples of those continental students who for the most part have, we believe, been trained with milder appliances, and who have ever been in the van of popular revolt, whether such revolt has been reasonable or unreasonable—these, we say, do not leave us much reason to regret our ancient code of educational discipline. If younger England is to be trained on a fresh one, we hope its results may not give us reason to be sorry for the change.

But corporal punishment hardens and brutalizes. This is a charge of a very different kind; and, as it would appear, equally unjust. For mercy in war towards others, for charity in peace towards her own children, for pity to the captive, England stands proudly forward in a position not to be gainsaid; and yet, they would tell us that the bulk of the last generation of Englishmen were miserably injured by the dishonouring outrage of the cane. The reader may smile at the obsoleteness of a reference to Solomon, but we firmly believe, that if the effect of moderate corporal punishment were, by one and the same heavy pressure, to break down all the elevations of the heart; at once to humiliate, and to harden; to rupture all the finer fibres of character, and, through the boy, to debase the man—Solomon would not repeatedly have enjoined it. Nor perhaps is it too much to say, that if such were the necessarily attendant evils, the idea of bodily castigation would scarcely have received the countenance which a frequent reference to it by the inspired writers in the way of metaphor appears to give it. Some have been bold enough to say, that Solomon's language when he speaks of stripes is purely metaphorical, that he means no more than the "verbera linguæ," the "bastinado with the tongue;" but one and the same text both disproves any such interpretation, and proves at the same time that (to speak reverently) the sacred writer took no exaggerated view of the subject; that he did not coarsely overlook the much-vaunted moral influences; but, that with a full knowledge that corporal punishment was not always a speedily acting nostrum for sloth or obstinacy—that to the docile a hint might go further than a blow; he, nevertheless, frequently recommended the latter. The text we refer to is this: "A reproof enters into a wise man more than a hundred stripes into a fool."

Another objection often alleged against corporal punishment is, that boys become physically hardened, and that thus the chastisement is daily losing its effect. This notion is boastfully and politically encouraged by boys themselves; but it is an extremely fallacious one. Boys may indeed, for the sake of bravado, and by a certain preparation of the mind, bear punishment with more or less fortitude, according to their natural sensitiveness, or the estimate they may happen to have formed of the honour of endurance. Some boys of the Spartan breed will not give the smallest sign of suffering.

"Effigies lassum Steropen Brontenque reliquit;"*

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* Statius, Sylv. I.

but the master ought not to be led to excess of severity by this statue-like firmness, which is not without its merit. Severe indeed and often reiterated must such punishment be before it really deadens or even diminishes a boy's feeling—and pain can never become a thing indifferent. If a youth can by these repeated hammerings be made comparatively callous to bodily inflictions, with much greater ease may he be inured to scribbling impositions with dogged patience, and ink-encrusted fingers; or gradually find methods of beguiling his hours of solitude in a deserted school-room, till he becomes almost acclimatized to its dusty desolateness. More easily still may he absorb advice till he can absorb no more, and imbibe the medicine of chiding and remonstrance till like other often-repeated doses they quite lose their effect. It is indeed generally speaking only to the more mature that the pains of the mind are more cogent than those of the body, and that imagination shapes our mental afflictions into a thousand forms, and gives to each of them an ever new sting, so that they never lose their stimulus. The mental pains of the young are not complex, and Providence has wisely and kindly ordained that they should not be very continuous. In nine cases out of ten, if traced, they will be found after all to resolve themselves into the fear of some bodily pain, or the dread of the withdrawal of some animal indulgence.

We have now noticed the principal objections to bodily chastisement. To those who admit its propriety some passing remarks may be of service respecting its methods, its abuses, the theory on which it should be administered, and the most proper time for using it. For time, it is by far the most merciful plan to commence with it early, at what Sir Henry Wootton calls, "the obsequious age when the suppleness of obedience is to be plied by parents,"* because, far less severity is then necessary—because a parent or a master is far less likely to be irritated violently with a young than with an older boy; because the sooner rightful authority is asserted, enforced, and understood, the better; because the boy himself at an early age sooner forgets and forgives; and, though he may not quite so readily see the reason of his punishment, his affection will generally be sooner won back and reconciled by the returning kindness of his master—the delay of two or three years may make quadruple the punishment necessary. It may be proper at sixteen, or even later, to give a summary chastisement in cases of insolence, both for example's sake, and to put a present check upon the evil; but for other purposes bodily castigation at that advanced age is rarely profitable.

> "The management of tiros of eighteen†
> Is difficult, their punishment obscene."

Some masters have handed such cases over to the school porter.‡

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* Survey of Education.

† Cowper's Tirocinium.

‡ "The rule of conduct which was prescribed to the students is the more curious, as it affords the first outlines of the form and discipline of a modern university. The studious youth were severely prohibited from wasting their time in feasts, or in the theatre, and the term of their education was limited to twenty. The præfect of the city was empowered to chastise the idle and refractory with stripes and expulsion."—GIBBON, chap. xxv.

Valentinian, in his famous college, which was in some respects the model of our modern universities, made a civil offence of adult refractoriness, consigning the offenders to be corrected by the præfect of the city. Teachers, by taking such cases in time, might generally spare themselves embarassment; but, to indulge little boys, and to be severe with great ones, is the method too often pursued; the former plan of course making the latter necessary.

The age at which correction is administered affects the question in other ways. The worst faults of young boys require prompt and certain, rather than very severe punishment at long intervals. By the former method a master's irritability will not so accumulate as to require to vent itself violently—neither will the boy be tempted on by the length of time during which the retribution is impending. The certainty of the punishment will produce more constant care in his mind, and more alacrity in the act of self-correction, where the fault is one of carelessness, or want of attention. We have no fancy for black looks, and for long accounts to be defrayed in full at an undefined time. Many a lad will bear his grand flogging with the horrible flaggellum once a month, whose resolution would give way under the incessant annoyance of being punished, moderately, but with unfailing punctuality, every time he really deserves it. Nor do we approve of those very long lectures which some masters use as immediate precursors to castigation.

> "I would have no man think me so ungoverned,
> Or subject to my passion, but I can
> Read him a lecture 'twixt my undertakings
> And executions. I do know all kinds
> Of doing the business."*

They call this cooling themselves. How admirable to them must appear the ceremonious practice of Jewish fathers at Constantinople, who, as Miss Pardoe tells us, consult the elders of the Synagogue before they whip their boys.† The fact is, that a master ought to be able to command himself in punishment, at the very moment of provocation; there is something pitiful in violent wrath against young boys, for merely boyish faults. But some teachers object to brief and frequent punishment, on account of the trouble which it gives. To such we would commend the admirable words of a living writer, "in punishing let not a man consult his anger, nor in remitting punishment, his ease."‡

Again, with reference to persistance in punishment in refractory cases, Dr. Johnson's opinion may be worth quoting, both as it respects the kind of punishment which we have been advocating, and the extent of perseverance which he considered justifiable.

"As good things become evil by excess, correction by being immoderate may become cruel. But when is correction immoderate? When it is more frequent, or more severe, than is required *ad monendum, et docendum*, for reformation and instruction. No severity is cruel which obstinacy makes necessary; for the greatest cruelty would be to desist, and leave the scholar too careless for instruction, and too hardened for reproof. Locke, in his treatise on Education, mentions a mother with applause who whipped an infant eight times before she had subdued it; for, had she stopped at the seventh act of correction her daughter, says he, would have been ruined. The degrees of obstinacy in young minds are very different; as different must be the degrees of persevering severity. A stubborn scholar must be corrected till he is subdued. The discipline of a school is military. There must be either unbounded licence, or absolute authority. The master who punishes, not only consults the future happiness of him who is the immediate subject of correction, but he propagates obedience through the whole school and establishes regularity by exemplary justice."*

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* Ben Jonson, Magnetic Lady, Act III., Scene 5.
† City of the Sultan.
‡ Essays written in Intervals of Business.

We would, with all deference, somewhat modify these oracles. As a general rule it is better to take no notice of sullenness unless it degenerates into downright impertinence. Let it work itself off, which it is the more likely to do the less you appear to observe it. When the punishment has been given, let the fault be forgiven, and as far as it is possible let master and boy start fair again. It is very desirable that a master should have this faculty of thus discharging faults. Even in cases of obstinacy the most trying of all, do not let a master make a principle of persevering in correction till he fancies he has expelled the evil spirit; this he probably will not do; at the time, without losing his own temper, and using excessive violence. The cane may easily become the conductor of malignity from the boy to the master.† Let the latter administer a sharp correction, and remove the temptation at once, if possible, by dismissing the boy from his presence for the time. Should there be a recurrence, let him make use again of exactly the same process, and his point will probably be gained at last. Let it satisfy him, (without obtaining a present conquest,) that the boy knows he could punish him more severely and persistingly if he chose. The best way of commanding a boy's temper is, to show that you can command your own. Nothing is more injurious to the dignity of the master in the eyes of the lookers on than a boy in an attitude of perhaps successful defiance, and the master himself in a passion; nothing more injurious to the boy himself, than a long-sustained opposition of the will. The habit of mind formed by conscious and continued resistance of this kind is extremely bad. The wills of governor and governed are sure to clash occasionally, but avoid, as far as is consistent with your office, all that you know to be peculiarly exciting causes. Chapman, in one of his plays, introduces the following advice to royalty, and excellent it is for all in authority.

"In all things governed, their infirmities
Should not be stirred or wrought on."‡

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* Boswell's Life of Johnson.

† Dum feriunt odere suos, animosque labantes
Confirmant ictu.—LUCAN. IV. 249.

‡ Byron's Conspiracy, Act I., Scene 1.

ON HISTORY.

History has been somewhere said to be "philosophy teaching by examples." Moreover, a well-known and popular historian of our own day has declared, that "in a country like this, where almost every one is called upon to take a part in politics, no species of knowledge is more indispensable than history;" and then adds, "under the guidance of sound sense, without which it is of little avail, it is our surest protection against wild political theory, and enables us to think and act with confidence and security in public emergencies." Now, without subscribing implicitly to this last sentiment, it will be admitted on all hands that a sound knowledge of history is an integral, interesting, and highly useful portion of a good education. The question therefore to which we are anxious to call attention in the present paper is, How can a sound knowledge of history be acquired?

It is plain that the first requisite towards this end is a supply of good books. In this respect, however, the rising generation are much more fortunate than their forefathers. Perhaps no department of literature in this country has received more valuable additions during the last twenty years. Nor is it needful to mention instances. But good books being given, how are they to be turned to the best account? Will the mere reading them over page by page answer the purpose? We are compelled to say we think not. Well do we remember in our own case, that while at twelve two or three historical catechisms had been committed to memory so that every word was known at the time, at sixteen the whole of it, or nearly so, had vanished; though they were carefully and attentively, not even hurriedly got up, the examinations were diversified and minute, and the prize-books duly received and admired. When history was wanted for real use, the acquisition had to be begun *de novo*, and on a new system; and many a year was it before there was realized anything like a filling up of the deficiency thus occasioned by taking for granted that so much of historical knowledge had been gained.

But to leave a particular case, our belief, founded on considerable experience, is, that boys generally know a great deal less in this department of knowledge, not only than they ought, but than is generally supposed. We are very much disposed to think they are inferior in this respect to girls. The reason seems to be, partly that this kind of knowledge is taken for granted, especially in the case of boys pretty well advanced in other reading—partly that, when this reason does not hold, the pupil is told, it may be, from time to time to get up his history, but no pains are taken to investigate or encourage his progress: or, lastly, when an earnest endeavour is made and the history of Greece, Rome, or England is proposed as the subject of examination and compliments and prizes, the work is got up for the occasion—it serves the occasion—and then ceases to form part of the stock-in-trade. It lacks the power of self-existence or reproduction; it is without the faculty of growth, without vitality. Jonah's gourd is a fit emblem of this kind of operation. Sometimes, and this is a capital though a very natural error, some portion of history is set to be got up during a Christmas vacation; and the end is that all history from that time is looked upon as a bore; and an "indispensable" species of knowledge becomes a dead letter, if not a disgust, to the future politician; or at all events, a most interesting and valuable birthright is avoided and neglected by him who is, or is intended to be, a useful and respectable member of society.

We are led to conclude, therefore, that history should be made an integral, not an accidental part of education; that it should form a real, substantial portion of almost every-day's work, not a short-lived effort now and then; should become a profitable acquirement, not a string of mere facts; should be the business of school-hours and attended to in school, not or not merely of vacations and play-hours. We wish to make a suggestion or two, to explain our meaning, premising that we have classical schools particularly in our mind. Cæsar's Commentaries are or ought to be very early put into a boy's hands. While reading Cæsar let him be taught, from the best books on history, all that is known of Cæsar himself, as well as of the places and towns mentioned in his writings. Let him read such portions from time to time to the master or the master to him. In many schools even the act of reading would have its use; in grammar schools it is too little practised. The Latin and the history read together will explain and illustrate one another. The pupil will be interested in both, will understand both; and the knowledge thus acquired will *therefore* in all probability be his as long as he lives. Soon he is able to read Cicero. Along with the Orations against Catiline let him read Keightley's *and* other histories where they treat of that remarkable man and his times. The Pro Lege Maniliâ opens up Pompey and the eastern provinces of the empire; and Pompey serves to connect the present author and subjects with his great rival Cæsar. The twenty-first book of Livy introduces him to Hannibal, the Scipios, and all the Punic wars: allusions here and there carefully followed up will have brought before his notice the other most eminent men in Roman story, especially the Gracchi, Marius, and Sylla. Supposing him to read also Sallust's Bellum Jugurthinum, which calls attention to a new set of nations and to a different quarter of the globe; the student will have become sufficiently interested in these several biographies to be anxious of himself to know how all these people were connected together, and reading of a more regular kind may now be resorted to with profit. We do not mean that the usual modes are to be excluded; but we do think that this plan would be likely to give something more of life and vigour to the course, and that what was got would be more real and available: that in this way history would more fully discharge her office and remind us more frequently of her boast that she is "philosophy teaching by examples." Virgil and Ovid would of course give animation, as far as might be desirable, to the old mythological legends and to the earlier accounts of ancient Rome. We may observe in passing, that geography and chronology, the handmaids of history, would be most easily acquired *along with* the history, and be thereby rendered more active, ready, and healthy. It need scarcely be added that Grecian history is capable of being treated in like manner and with the like results. Begin with the Anabasis of Xenophon and let the pupil make acquaintance with Cyrus and the retreat of the Greeks. A couple of books of Herodotus, or three, will put him in possession of the elder Cyrus, Darius, Xerxes, Crœsus, and Solon, and last, not least, with the Egyptians. He is then prepared for the easier parts of Thucydides, and soon gets familiar with the Peloponnesian war and its heroes, Pericles, Alcibiades, Nicias, and Hermocrates. Of course it is to be understood that those parts of our best histories that treat on these subjects must be contemporaneously read and read again if necessary. Thirlwall and Grote are never more intelligible, never more interesting than when Thucydides is lying open before us at the same time. With so much of knowledge acquired in an easy and interesting way—connected too as it would be with practical use in the daily reading of classical authors and served up at the same time—the digestion of the whole of their intellectual food is natural and wholesome, and the result is a strong-minded, well-furnished man, fitted for his work and useful in his generation.

While thoughts like these have been for some time floating in the mind, it could not but be highly gratifying to us to find one of the most sensible writers—if not the most sensible writer—of our day using language which we propose to lay before our readers *in extenso*. We make no apology for the length of the extract, and indeed we need not make any, unless to the author himself for having mixed up his well-digested thinkings and clear pregnant sentences with our own.

"I suppose that many who now connect the very word history with the idea of dulness would have been fond and diligent students of history, if it had had fair access to their minds. But they were set down to read histories which were not fitted to be read continuously, or by any but practised students. Some such works are mere frame-work, a name which the author of the 'Statesman' applies to them—very good things, perhaps, for their purpose, but that is not to invite readers to history. You might almost as well read dictionaries with a hope of getting a succinct and clear view of language. When, in any narration, there is a constant heaping-up of facts, made about equally significant by the way of telling them, a hasty delineation of characters, and all the incidents moving on as in the fifth act of a confused tragedy, the mind and the memory refuse to be so treated; and the reading ends in nothing but a very slight and inaccurate acquaintance with the mere husk of the history. You cannot epitomize the knowledge that it would take years to acquire, into a few volumes that may be read in as many weeks.

"The most likely way of attracting men's attention to historical subjects will be by presenting them with small portions of history, of great interest, thoroughly examined. This may give them the habit of applying thought and criticism to historical matters. For, as it is, how are people interested in history? and how do they master its multitudinous assemblage of facts? Mostly, perhaps, in this way. A man cares about some one thing, or person, or event; and plunges into its history, really wishing to master it. This pursuit extends: other points of research are taken up by him at other times. His researches begin to intersect. He finds a connexion in things. The texture of his historic acquisitions gradually attains some substance and colour, and so at last he begins to have some dim notions of the myriads of men who came, and saw, and did not conquer—only struggled on as they best might—some of them—and are not.

"When we are considering how history should be read, the main thing perhaps is, that the person reading should desire to know what he is reading about, not merely to have read the books that tell of it. The most elaborate and careful historian must omit, or pass slightly over, many parts of his subject. He writes for all readers and cannot indulge private fancies. But history has its peculiar aspect for each man: there must be portions which he may be expected to dwell upon. And everywhere, even where the history is most laboured, the reader should have something of the spirit of research which was needful for the writer: if only so much as to ponder well the words of the writer. That man reads history, or anything else, at great peril of being thoroughly misled, who has no perception of any truthfulness except that which can be fully ascertained by reference to facts; who does not in the least perceive the truth, or the reverse, of a writer's style, of his epithets, of his reasoning, of his mode of narration. In life our faith in any narration is much influenced by the personal appearance, voice, and gesture of the person narrating. There is some part of all these things in his writing: and you must look into that well before you can know what faith to give him. One man may make mistakes in names, and dates, and references, and yet have a real substance of truthfulness in him, a wish to enlighten himself and then you. Another may not be wrong in his facts, but have a declamatory or sophistical vein in him, much to be guarded against. A third may be both inaccurate and untruthful, caring not so much for anything as to write his book. And if the reader cares only to read it, sad work they make between them of the memories of former days."

Thus writes the author of "Friends in Council,"—one of the most real and suggestive works that has ever been written—a book full of sound sense, thoughtful reflections, and practical usefulness, and which we are delighted to hear is making slow but sure way among those to whom it is more especially addressed—a book which we feel sure cannot fail to bring both pleasure and profit to every right-minded reader, and of which we are anxious none of our readers should be entirely ignorant. C. P.

ON EVENING SCHOOLS IN AGRICULTURAL DISTRICTS.

The return of the present month, which brings with it the commencement of the winter half-year, and the suspension of the busier operation of husbandry, leads us to make some observations upon evening schools, as connected with the education of the agricultural labourer. In considering this subject in our last number we noticed the obstacles to the education of the agricultural poor, particularly boys, which meet us from opposite quarters; namely, that, on the one side, the parents take the children from school as soon as they are able to earn anything; on the other, when the child is continued at school until he has obtained a fair education, the farmer complains that from want of being earlier habituated to his work such child is unsuited for it. We also noticed the meritorious and successful endeavours of Mr. Batson to overcome these obstacles by the adoption of a system which combines industrial with other instruction, and adds to this the still greater advantages of discipline, training, and constant superintendence for a period of several years. It is too much to venture to hope that such an example will be generally followed. The main object of pointing it out, is to show what may be done by such a system when duly applied, and to induce others to attempt, if only at a humble distance, something of a like nature, and so to obtain some of the benefits which result from it. Undoubtedly the greatest advantages will arise from the full adoption of such a system as a whole, according to which boys are boarded, lodged, clothed, daily superintended in their out-doors work, and every evening instructed in religious and other knowledge for a period of four years. Habits of industry, regularity, cleanliness, and sobriety will thus be formed, temptations to the contrary avoided; a thorough knowledge of the different acts of husbandry and skill in performing them will be acquired; and daily instruction will open the mind and render the boys intelligent workmen, capable of quickly learning any new methods of cultivation that may be discovered, and such as are entitled to a degree of confidence that can rarely be placed in a dull and untrained labourer.

But where only parts of such a system can be applied, some of these advantages may be gained. Thus, it appeared from a reference in our last number to the Duke of Bedford's farm at Woburn, boys only hired by the day, if employed in gangs properly superintended, will make better labourers, and be more readily engaged by the neighbouring farmers after leaving the "gang," than others who have not gone through such a course of training. Again, boys when boarded, lodged, and instructed under one roof, though employed by different masters (according to the system recommended by Mr. Munro, which we noticed in our April number), will gain many of the advantages arising from Mr. Batson's system, if not the important one of being superintended and trained regularly in acts of husbandry. One advantage of Mr. Batson's system was shown to be, that, after being employed during the day in farm labour, when this was over, sufficient time remained for learning to read and write decently from the opportunity of having constant evening instruction during three or four years. If then instruction every evening is sufficient to enable boys who previously possessed no knowledge beyond the alphabet, to show fair acquirements in reading, religious knowledge, and arithmetic, it is obvious that two or three evenings in the week so employed would enable boys who can read and write, to keep up what they have already acquired, and to make some further progress. Here, therefore, it appears that the evening school may be made instrumental in carrying out a part of Mr. Batson's system, and in preparing the way for the adoption of other parts of it.

In Mr. Batson's account of his own establishment he mentions, that besides providing a superintendent to overlook the boys by day when at work, and to teach them in the evening, he himself assisted every evening also in the school. Now, certainly this is what few, who might be disposed to try other parts of the system, could bring themselves even to attempt. And the occasion for it is at once removed, wherever an evening school is established in the neighbourhood, and thus the existence of such a school would do away with one great obstacle to the adoption of the other parts of the system. An evening school might also do much towards preparing the way for the introduction of the system. It would greatly assist in confirming boys in habits of order and regularity, already acquired at a day school, and in cultivating their minds, and in thus rendering them better able to understand and duly value the benefits of such a system, in promoting the happiness of their future lives. Theoretical and practical instruction in acts of husbandry might also be given in such schools, which would add interest and life to the daily occupation of the boys, teach them to observe what others are doing, and by observation of actual practice confirm them in what they may hear or read at school. It is plain that from boys thus prepared and brought into some degree of order, it would be easier to form such an establishment as Mr. Batson's, than from those who had not even learned their alphabet, nor passed through any preliminary training. And when formed, such an establishment and the evening school might be made mutually conducive to the benefits to be derived from each. Or, if any one should be disposed to hire boys only by the day in order to form gangs, as on the farm of the Duke of Bedford, encouragement to make such an attempt and considerable aid in making it might evidently be in like manner derived from a good evening school, which, therefore, may be instrumental either as an assistant in carrying on such systems, or as a step towards opening the way for the adoption of them. And it is on this account that we have been led to speak of evening schools in connection with what was said in the last number of the Journal upon the education of the agricultural labourer.

It may be of some assistance to those who are disposed to avail themselves of the present season of the year for the establishment of evening schools, to add a few words upon the method of conducting them. In doing so we will first briefly recapitulate some valuable observations upon the subject which appeared in this Journal in the number for August of last year, and which the writer stated to have been suggested by an experience of seven years. After confessing that he had no great faith in teaching adults, as a general rule, more especially when of the country village species, and after expressing his belief, that the true work of evening schools is, to carry on education begun in the daily school, but prematurely interrupted by the boy being wanted for labour, and that in this respect the evening school, joined with a good Sunday school, is invaluable, and affords the only hope of increasing the knowledge of our labouring poor, he remarks: —1. That the manager of an evening school will not so much covet the attendance of men as of boys; and that, although there are of course exceptions to this rule, of its general truth he has little doubt. 2. That it is essential to success that the clergyman himself, or some person of superior station and intelligence, should be the chief teacher, since nothing but the presence of some such person will commonly preserve order and regularity. 3. That a warm and light room is indispensable, and that it is well to connect a lending library with the evening school, as a good opportunity is thus afforded for changing the books at the only time when the labourer has leisure. 4. That religious instruction will be best communicated in the evening school indirectly, by making a tract or book of an interesting but instructive kind the class-book; and that there will be the less need of direct religious instruction, if it be a rule, that all boys not confirmed who attend the evening school, should also come to the Sunday school; and that as to the boys paying or not, the writer, looking on the evening school as the only means of instruction open to the poorer children, inclines to the non-payment system. 5. That the school should not be held oftener than twice or three times a week, for two hours each time, and only during the winter half-year. 6. That, as to the kind of instruction, reading will be the principal, with explanation of the matters read; that writing will commonly be found to be a very popular part of the school work; and that a little arithmetic will please the boys and do something towards producing accuracy of thought and reasoning; and that further than this he has never been himself able to get. He also observes that one good result of his own experience has been that, though farmers are in general no warm friends of education being given to the poor, such as they themselves have never had, they have always shown themselves friendly to the simple teaching of the writer's evening school, and often taken some pains to give such of their boys as wished it, an opportunity of getting there. He concludes with declaring his belief, that every clergyman, who has strength and time at his disposal, will find in the management of an evening school a real opportunity of doing his Master's work; and that the influence which he thus insensibly gains with the young members of his flock at this most critical period of their lives, will be to their and his great benefit.

In the Monthly Paper of the National Society for last month there are also some suggestions on the subject of evening schools from a correspondent, who recommends that the school should commence in the early part of October and continue until Easter; that it should be held on three evenings of the week from seven o'clock to half-past eight or nine; that the departments of study should be reading, writing and arithmetic; and that, if there be three teachers, each teacher should take a separate department, and each department be carried on at a distinct table or desk. According to this plan the scholars are to be divided into three classes, and the classification to be made according to proficiency in reading. There should be three sets of books; one set of ordinary difficulty but interesting in style, a second easier, and a third the most elementary. The time of school should also be divided into three portions of half an hour or forty minutes each, during the first of which, for instance, the first class will be engaged in reading, the second in writing, and the third in arithmetic. If each teacher takes a separate department, at the end of each portion of time, the classes will pass over simultaneously to fresh places and occupations, and so every class receive in the course of the evening instruction in all three departments under the respective teacher of each. If there are only two teachers, one may take the reading, and the other superintend both the arithmetic and writing. An important caution is given to beware of yielding to the impulse of explaining at once every difficulty which arises; also to put the pupil on a good system and afford him every needful assistance, but to remember that without habits of industry and self-instruction on his own part, he can make no solid advance in the cultivation of his mind. And we would here introduce a suggestion, which we have somewhere met with, that it would be well, at all events at the first establishment of an evening school, not to confine the older pupils to mere lessons in reading, writing, and arithmetic, but occasionally to read to them anything of great public interest, or likely to interest and benefit them, or upon which some useful observations might be founded, or to use in this way short tales, biographies, or travels. And in teaching reading, particularly to older and more advanced pupils, much advantage may be derived from the teacher reading with them, and thus showing them by example how to read in an intelligent and natural manner, as contrasted with the drawling and monotony of many who can read nevertheless with tolerable facility and correctness.

In the Monthly Paper for April last, will be found a letter from the Secretary of the London Diocesan Board on the subject of evening schools, making known a resolution of the Board to entertain applications for pecuniary aid for the establishment of such schools. It proposes that the schools should be limited to young persons between the ages of twelve and seventeen; and that they are not to be in any way identified with what are called Free or Ragged Schools, but are for the respectable and well-conducted of the labouring class. It is thought that the offering to such facilities of obtaining evening instruction may do much to remedy the great defects found to exist in the means of education, particularly as regards the very small amount of knowledge, religious or otherwise, retained in after years by those whose education ceases at a very early period, as also in respect of the number of children of the labouring poor who never attend daily schools at all, and the hitherto insurmountable difficulties experienced by the clergy in their endeavours to keep up a pastoral and friendly connection with those who have left school before the period of confirmation and admission to the Lord's table. It is the opinion of the Board that evening schools, when once established, will in many if not in most instances become self-supporting, but as the difficulty of maintaining these schools for the first year or two may in some cases be great, they will be ready to give assistance to the clergy according to the circumstances of the case and the means at their disposal, towards the establishment of such schools in their respective parishes and districts. This document is of importance not only on account of its testimony in favour of evening schools, but also as affording reason to expect that other Diocesan Boards will be willing, if applied to, to afford similar assistance to those who may be desirous of establishing schools of this description.

Some information relating to evening schools, may be found in a work recently published on adult education,* but it throws comparatively little light on the education of the agricultural poor, as it describes principally what has been done in large towns and manufacturing districts, and enters more particularly into the history of the Mechanics' and Literary Institutions. From it we learn that Bristol has the credit of establishing the first school for instructing poor labouring men and boys, otherwise precluded from obtaining elementary instruction in their few hours of leisure. The "Benevolent Evening Schools Society" was established there in 1806, and is still in useful operation. The instruction from 1806 to the present time has been reading, writing, and arithmetic. In 1842, the elements of geography and history were added. It appears that the adults have not exceeded the average of one tenth of the number attending the school, and that during a period of 42 years, over which the operations of the school have extended, seven thousand poor boys and men who have laboured during the day, have received instruction. Since the establishment of the school £2000 have been contributed, and prizes to the extent of £400 have been distributed amongst the most meritorious scholars, and the school has been carried on at an average annual expenditure of £20 for the master's salary, £20 rent, and £13 for incidental expenses. The committee speak of the good effects arising from the school of which they have been witnesses, such as, seeing many youths rise by prudence to permanent employments; others, avoiding their former associates, and devoting their energies to self-improvement until by diligence they have become respected tradesmen, influential citizens, and supporters of that asylum from which they first imbibed precepts of usefulness. In examining the causes of the decline of adult schools as originally formed, the three following are pointed out. 1. The want of competent teachers, who should in their whole conduct show themselves the sincere friends of the scholars, which should appear in kindness of manner, in patient forbearance to meet the weakness of their capabilities and slowness of comprehension, and in zeal and perseverance and readiness to explain what the pupils cannot at once understand, and so gain their regard and encourage them to overcome all difficulties. 2. The error of mixing with children persons of mature age, who in every station of life naturally feel reluctant to expose their ignorance and awkwardness before children. 3. The objection to teach writing on account of its being a secular employment. These facts, which we have selected from many, are so far interesting and valuable as they confirm the observations and suggestions collected in the former part of this paper.

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* "The History of Adult Education." By J. W. Hudson, Secretary of the Manchester Athenæum, &c. 8vo. pp. 238. Longmans, London, 1851.

In conclusion we will only add that the writer speaks very strongly of the advantages of lending libraries, and suggests that the village school room, when not wanted for the evening school, might be used as a reading room, and rendered very comfortable by covering the tables with green baize, and introducing a cheerful light and blazing fire: unless village libraries are open in the evening they decline, and whenever attention is given to this particular as well as to a due assortment of light literature, the library has never been found to fail in obtaining influence and numbers. It has also been found, that long after lectures, soirees, and even classes have lost their attraction, the library finds favour in proportion to the extent of amusing works on its shelves.

LESSONS ON THE RIVERS OF EUROPE.

(*Continued from page* 262.)

Rivers entering the Atlantic.

17. The Garonne rises in the Pyrenees, near the base of Mount Maladetta, flows north, then takes a general direction to the north-west, and empties itself into a large estuary called the Gironde. The

navigation of this river is difficult, but, by means of its numerous tributaries, it opens up a communication with twelve departments. About twelve miles below Bordeaux the Garonne is joined by the DORDOGNE, and the united stream receives the name of the GIRONDE.

The channel of the Gironde is obstructed with islands and sandbanks, which render the navigation very intricate.* The length of the Gironde is about forty miles, and it varies in width from one mile and three-quarters to about nine miles. The whole length of the Garonne is about 350 miles, of which 266 are navigable. The total river navigation of its basin is estimated to be about 1000 miles. The estuary of the Gironde and the river Dordogne are subject to the *bore*, the crest of which rising from thirteen to sixteen feet above the surface of the water, ascends the stream with great rapidity and force, overthrowing everything it encounters in its progress. Great damage is thus often caused to vessels in both the Gironde and the Dordogne. The *bore* ascends the latter a distance of 20 miles.

The *Canal-du-Midi*,† or Canal of the South, which joins the Garonne below Toulouse, connects the Mediterranean with the Bay of Biscay.

Toulouse, on the right-bank of the Garonne, is the ancient capital of Languedoc, and the present capital of the department of Haute-Garonne.‡ It is a place of considerable importance, and possesses many remarkable ancient buildings, among which may be mentioned the cathedral and town-hall. It has a cannon-foundry, an arsenal, a school of artillery, a military gymnasium, and numerous other institutions. Among its industrial products may be noticed the following:—a tobacco factory, copper and iron foundries, a porcelain manufactory, brandy distilleries, &c. It is the entrepôt for the iron of Ariège and Aveiron,§ two of the departments of France, and the centre of the traffic between France and Spain. The trade of the city consists of wheat, wine, brandy, oil, soap, Spanish wool, broadcloth, &c. In the vicinity of Toulouse a sanguinary battle was fought on the 10th April, 1814, between the allied army, under Wellington, and the French, under Marshal Soult, in which the latter were defeated. The population of the city, 90,000.

Bordeaux, on the left bank of the Garonne, is the chief town of the department of the Gironde, and the richest of all the cities in the south-west of France. It is the second commercial port of the kingdom, and its harbour is capable of holding from 1000 to 1200 vessels, of from 500 to 600 tons burden. The trade of the place is considerable; the chief articles of export are wine, brandy, and fruits. The best wines are exported principally to England; the inferior sorts to Germany and Holland. There is also a trade in cork, resin, tar, turpentine, hemp, flax, juniper-berries,* &c. Besides its foreign trade, Bordeaux has numerous manufactories, of which the most important are refined sugar, vinegar, liqueurs, chiefly aniseed,—china, paper, soap, &c. Ships are also fitted out here for the cod and whale fisheries.

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* At the entrance is the Tour de Cordouan, the most celebrated of the light-houses of France. It has a revolving light which can be seen at a distance of nearly twenty-five miles out at sea.

† This canal is 33 feet wide, 6½ feet deep, and has a length of 140 miles. It is crossed by seventy-two bridges and fifty-five aqueducts.

‡ *Upper.*

§ Ariège lies to the south, and Aveiron to the north-east of Toulouse.

Bourdeaux has communication with the Mediterranean by the Canal du Midi, and by means of the Garonne, the Dordogne, and their tributaries, its commerce is extended over a great portion of the interior of France. The railroad from Paris to Bayonne,† and another which stretches from the Atlantic to the Mediterranean,‡ both pass through Bordeaux. There is also a regular service of packets from this port to the Havanna and the coast of Mexico. Population, 125,000.

18. The LOIRE rises in the chain of Cevennes, flows first from south to north, then turns west, passing through the centre of France, into the Bay of Biscay. In the upper part of its course, it has, in many parts, a torrent-like character, and for the first fifty miles the average descent is more than fifty feet a mile. After this its rate of descent decreases, averaging about four feet a mile. The current is rapid throughout its whole course; and the sand and soil brought down form islands or shifting sand-banks which materially impede the navigation. It is subject to frequent inundations, from the melting of the snows in the mountains, whence it has its origin. In the lower part of its course, *dykes* have been thrown up to prevent the lands from being inundated. By means of canals, this river opens up a communication with the Atlantic Ocean, the Seine, and the Rhone. The whole amount of internal navigation is estimated to be 1300 miles. The length of the Loire is 560 miles, of which 422 are navigable.

It receives many tributaries, among which may be mentioned the following:—On the right, the *Maine;* on the left, the *Allier*, the *Cher*, the *Indre*, and the *Vienne*.

Orleans, chief town of the department of the Loiret, stands on the right bank of the Loire. Although a large, it is not a beautiful city; and the streets, in the older parts of the town, are narrow, dirty, and badly paved. Among its buildings may be mentioned the cathedral, one of the finest gothic edifices in France. Although well situated for commerce, the trade of Orleans is less extensive than it used to be. The chief manufactures are, fine woollen cloths, flannels, hosiery, cotton yarn, refined sugar, bleached wax, and vinegar. It has a great trade besides in brandy, wine, corn, timber, and colonial produce.

Orleans is famous for the siege it maintained against the English in 1428, and which Joan of Arc compelled them to raise. In one of the squares of the city a monument has been erected to the Maid of Orleans. The statue is of bronze, eight feet in height, and on the sides of the pedestals, which are of marble, are bronze *bas-reliefs*, representing the principal actions in the life of the heroine. Population, 42,000.

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* These are exported to Holland.

† The towns it passes through are—Orleans, Tours, Poictiers, Angouleme, Bordeaux.

‡ It begins at Tête-de-Buch on the Atlantic, and passes to Bezières and Montpellier on the Mediterranean.

Tours, capital of the department Indre-et-Loire, stands on a narrow tongue of land between the rivers Cher and Loire. This is a beautiful town; the houses are in general substantial, clean, and elegant, but the streets, with few exceptions, are narrow and crooked. A magnificent stone bridge, 475 yards long by 16 in breadth, and having fifteen arches, each 26¼ yards in span, forms the entrance to the city from the Paris road. From this bridge a straight wide street, lined with uniform buildings of freestone, runs right across the town in its widest part, and terminates in the avenue of Grammont, from the end of which a bridge crosses the Cher into the Poitiers road. Among the buildings may be mentioned the cathedral, the front of which is flanked by two towers, built by Henry V. of England; the archbishop's palace, one of the finest in the kingdom; and the cavalry barracks, built on the site of the castle of Henry II. of England.

The manufactures of Tours consist chiefly of silk, carpets, woollen cloths, woollen yarn, and leather. Besides these, there is a trade in plums and dried fruits, wine, corn, hemp, lace, &c.

Tours formed part of the English dominions till the reign of John (1204), when it was annexed to the crown of France. Population, 30,000.

Poitiers, or *Poictiers*, the capital of the department of Vienne, is built on a rocky hill on the left bank of the Clain, a tributary of the Vienne. The city is, in general, ill-built, and the streets are steep and narrow. It covers a large space of ground, but a considerable portion of it is occupied with orchards and gardens. It possesses a cathedral, said to have been founded by Henry II. of England; the church of Nôtre Dame, which is much admired for its magnificent portal, and the number and beauty of its sculptured ornaments; and several other churches containing some curious tombs and monuments.

The manufactures consist principally of woollen cloths, blankets, hosiery, lace, leather, and prepared skins. There is a considerable trade in hay and clover seeds, hemp, flax, honey, wax, and sheep-skins. Population, 25,000.

Three great and decisive battles have been fought in the neighbourhood of Poitiers. At *Vouillé*, north-west of Poitiers, Clovis, in 507, defeated the Visigoths under their famous leader, Alaric; in the plains of Poitiers, the Franks, in 732, under Charles Martel, gained a victory over the Saracens under Abdel-rahman; and in 1356, the Black Prince, with 8000 men, defeated an army of 50,000 French troops, and took prisoner, among others, John, king of France, and his son.

Poitiers came into the hands of the English by the marriage of Eleanor of Guienne to Henry II. It was, however, wrested from them by Philip Augustus in 1204. It was again ceded to England in 1360, but in 1372 it reverted to the crown of France.

Nantes, the capital of the department Loire-Inférieure, is built on the right bank of the Loire, about 34 miles from its mouth. Certain parts of it also stand on islands which are connected with the main land by bridges. On these islands are some of the handsomest portions of the town, which, especially in the more modern part, is clean, well-built, and well laid out. For two miles along the banks of the Loire and Erdrè [*] extend *quays*, which, planted with trees and backed by warehouses and balconied terraces, present not only a very beautiful appearance, but are handsome and favourite promenades.

Nantes is admirably situated for commerce, having communication with the interior of France both by means of water and railways. Vessels of 200 tons can ascend to the city, but those of larger burden are obliged to load and unload about 24 miles below it.

The manufactures consist of coarse woollen cloths, printed cotton goods, blankets, flannel, refined sugar, &c. There are also extensive chemical works, potteries, copper foundries, brandy distilleries, and ship-yards for the building of merchant ships, and smaller vessels. The chief articles of export are, brandy, wine, vinegar, woollen cloths, refined sugar, prepared meats, ship biscuits, &c. The principal imports are, sugar, coffee, and other colonial products; timber, hemp, pitch and tar, cotton, indigo, &c. The countries with which she chiefly trades are the French West Indies, South America, Sweden, Denmark, Russia, and the north of Germany. There are many vessels, also, engaged in the whale, cod, and pilchard fisheries.

Nantes possesses large magazines of provisions and ammunition, from which the ports of Brest, Rochefort, and L'Orient obtain their supplies.

Steamboats go up the river to Angers and Orleans; down to Paimboeuf, to Bourdeaux on the Garonne, and to many other towns. Population, 87,000.

Nantes is noted in history for the edict issued in 1598, by Henry IV., and hence termed the Edict of Nantes, which guaranteed to the Protestants the free exercise of their religion. The revocation of this edict, in 1685, by Louis XIV. was the means of driving from the kingdom great numbers of his most industrious subjects. About 50,000 of these, most of them weavers and other craftsmen, settled in Spitalfields, which became the seat of the silk manufacture in England.

PRACTICAL HINTS FOR THE SCHOOL ROOM.

SPELLING AND DICTATION.

WHATEVER importance we may attach to other branches of school instruction, must apply with equal and even greater force to correct spelling. This is a *sine quâ non* in the professional and commercial world, and in the middle and lower ranks of life it is a valuable if not an indispensable attainment. Writing, without a knowledge of spelling, is simply ridiculous, and unintelligible symbolism, as any one will testify who has had much epistolary intercourse with the humble tradesmen of the country. But every pedagogue will admit that it is no easy matter to teach correctness in spelling, even under favourable circumstances, to those who are proficient in reading and writing, but where there happens to be a deficiency in these two particulars, the task is doubly difficult. The words in which we are most likely to slip are the *homonyms* of the language, and such words as have nearly the pronunciation but a different orthography and meaning. As for instance, in the words "*there*," and "*their*;" "where," "wear," "ware," and "were;" "*has*," and "*as*," and in words ending in "*ceive*," and "*lieve*," as "*receive*," and "relieve." In writing the last, many tolerably educated persons will often pause in doubt. But they need not if they would only bear in mind that the words which have the "c," come from the Latin *capio* (I take), and invariably take "*e*," before "*i*," as "conceive," "receive," "perceive," "deceive," while those which have an "*l*," as invariably take "*i*," "before "e," as "believe," "belief," "relieve," and "relief." Now in order to impress these homonyms upon the minds and memories of a class, it is advisable that the teacher should contrive to bring them into juxta position by working them into simple sentences and then cause the children frequently to write these sentences on their slates as a dictation lesson.

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[*] The Erdrè is an affluent of the Loire.

By dint of a little thought he might also contrive to vary the phraseology of the lesson, and by this means the eye and hand would soon become acquainted with these perplexing little words, and the class would at the same time acquire some knowledge of their meaning, and of the way to apply them.

LESSON I.

(*To be written.*)

Don't you think that a *bear's skin* is better in cold weather than a *bare skin?* Can you tell me *where* the clothes we *wear were* purchased? *No*, How should I *know*. Well, they came from *Ware* in Hertfordshire. He alone is *holy*, who is *wholly* free from *unholy* thoughts and actions. If coals were scarce, *would wood* be valuable? He is quite as *weak* to-day as he was yesterday *week*. I thought those *two* men *too* wise *to* do it. Though we cannot *pare pears*, we never talk of a *pair* of *pears*. If you wish to know the *weight* of your luggage, *wait* and see it *weighed*. The *tale* of a tub is about the *tail* of a tiger. If you were to *see* the *sea* in a storm, you would acknowledge it to be the most imposing *scene* you had ever *seen*. The *scent* he *sent* me is worth fifty per *cent*. more than yours. A soft smooth *ruff* often covers a coarse *rough* skin. He will never get the *prize* for attending to his own concerns for he *pries* into every body's business. I will ask *Hugh* Smith whether those little *ewe* lambs which lie under the *yew* tree belong to *you*. Is *air* in *air-bladders*, *hair-brooms*, *hare-skins*, and *heir-looms* spelt in the same way? Well, if he *rode* the horse, I *rowed* the boat, and there is more than one *road* to the same place. He *bored all* these holes in this *board* with an *awl*. In the *course* of the day the sailors wrapped the *corse* in a *coarse* sail cloth, and threw it into the sea. There is a *great* fire in the fire-*grate*. What shall I give you to *shew* me the peep-*show?* *Beech* trees, I suppose have no more to do with the *sea-beach*, than the *key* of the cupboard has to do with the *quay* on the wharf. He learnt his lesson by *rote*, and then *wrote* it from memory. The *boughs bow* beneath the piercing axe, and the *leaves leave* the parent tree. Our *maid made* the pie; and when we *need* bread she *kneads* the dough. Is there any *tax* on tin-*tacks?* I know a *place* in London where you can purchase as much salmon and *plaice* as you please. I am in doubt *whether* this cold wet *weather* will much improve my *wethers* and lambs. *Pray* tell me what is meant by lawful *prey*. The wind *blew* the clouds o'er the clear *blue* sky. We set *forth* on the *fourth* of August. I've bruised my *heel* and *heal* it I cannot. In a thick November *mist* I once *missed* my way. We wish *him* to sing the *hymn*. Who was deprived of a *throne*, and *thrown* through a window? They *fought* desperately around the tower and *fort*. He has *won one*; it *is his*.

With a little thought all the homonyms in the language may be grouped together in this way, and arranged into lessons of convenient length for "dictation." And when these have been thoroughly mastered, other words of peculiar orthography may be arranged in a similar manner, either for dictation or for lessons in composition. The way to apply them in composition is to select half-a-dozen words, monosyllables to commence with, and to write them on a black board, with the meanings, if uncommon, opposite. Then let the pupils mould these half-dozen words into sentences of their own constructing. I have had frequent opportunities of testing the advantage of this method of instruction, and must confess that it answers in most cases admirably; as an instance of what I mean I take the following words, being peculiar in the spelling, and I write them, or any number of them, on the board: "*Tough*," "*chalk*," "*awful*," "*chasm*," "*palms*," "*thyme*," "*balm*," "*myrrh*," "*lyre*," "*psalms*," "*hymns*," "*isle*," "*ooze*," "*athwart*," "*cooing*." Every boy then with slate before him does his best to incorporate these into his sentences, and some after a little practice will frame them both quickly and elegantly.

The following is a sort of specimen of what a youth twelve years of age may do in this respect. "By the *tough* roots of hazel saplings, I mounted the *chalk* cliffs, and had then an *awful* view of the yawning *chasm* below. In a vale of *palms*, or where the *wild thyme*, *balm*, and *myrrh* perfume the breeze, would I pitch my tent, and tune my *lyre*, mid these sweets of solitude, to the *psalms* and *hymns* of the sanctuary. From a grotto in the *isle*, a little rill *oozes*, and steals *athwart* the meads. Listen to the wood-doves *cooing* in the elms." Such words as the following may serve well for a similar purpose: "*signs*," "*pears*," "*debts*," "*ghosts*," "*scythes*," "*knells*," "*gnats*," "*vogue*," "*yacht*," "*knife*," "*sighs*," "*aches*," "*qualm*," and others of like description.

MENTAL EXERCISES ON THE FIRST FOUR RULES OF ARITHMETIC.

The number of scientific terms employed in these fundamental rules of arithmetic are very perplexing to most children. The consequence is that they seldom care to understand their meaning; they have some vague undefined notions about them, which only serve to mislead or confuse them. The terms to which I allude are these:—Amount or agregate sum in addition; the minuhend, subtrahend, and difference in subtraction; the multiplicand, multiplier, and product in multiplication; the divisor, dividend, and quotient in division. Now the only way to obviate this difficulty is first to give a clear definition of the terms as they occur, and then to follow up the explanation with a few practical examples by way of illustration, in some such form as the following. Suppose we take first the four terms in common use, the amount, difference, product, and quotient. The numbers of course in the examples refer to the rules. Each question is merely a model by which to frame a number of questions of the same kind for class purposes.

1. What is the amount of 8 and 6?
2. What is the difference between 12 and 4?
3. What is the product of 9 and 7?
4. What is the quotient of 5 in 50?

1. What is one-half the amount of 8 and 6?
2. What is one-half the difference of 12 and 4?
3. What is one-half the product of 9 and 7?
4. What is one-half the quotient of 5 in 50?

4. What is four times the sum of 5 and 9?
2. What is eight times the difference of 7 and 5?
3. What is nine times the product of 3 and 4?
4. What is eleven times the quotient of 3 in 12?

1. What is six times the half of 4 + 6?
2. What is eight times the third of 18 − 3?
3. What is seven times the fifth of 5 times 7?
4. What is nine times the fourth of the 6th of 24?

1. Add the 6th of 24 to the 3rd of 21.
2. Take the 8th of 32 from the 4th of 28.
3. Multiply the 9th of 72 by the 7th of 84.
4. Divide the 12th of 120 by the 11th of 110.

NOTES OF A BIBLE LESSON.

Parable of the Tares. Matt. xiii. 24—30.

HEADS OF THE LESSON.

1. Explanation of the principal words and phrases.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

SPECIMENS OF NOTES ILLUSTRATIVE OF THESE HEADS.

1 Parable—kingdom of heaven—is likened—tares—blade—householder—from whence—wilt thou then—root up—reapers—bundles—barn.

2. The sea of Tiberias and the multitude—the time when this parable was delivered—the sowing of the good seed—the sleeping of the men and the consequences—the springing up of the tares—the question of the servants—the answer of the householder.

3. (*a*) *Explanation of the symbols or natural terms.*

1. The sower—the good seed—the field—while men slept—the enemy—tares among the wheat—servants of the householder—the harvest—the reapers.

(*b*) *The application, or the practical lessons.*

1. That in the Church of Christ there are both good and bad; but that at last they will be separated (v. 30).

2. That Satan is a watchful enemy, and takes advantage of the negligence of Christ's servants to spread false doctrines (v. 25).

3. That God is long-suffering and forbearing towards sinners (v. 29).

4. That it is only by "their fruits" true Christians are to be known (v. 26).

5. That the good will be rewarded, but the wicked severely punished (v. 42, 43).

Remarks. After the narrative or the points to be illustrated, is found "Explanation of the symbols or natural terms." This head can only appear when the lesson treats of some of the parables of our Lord. Christ in his teaching employed outward and visible objects to represent by comparison heavenly and spiritual ones. The natural terms or symbols, therefore, require to be explained and elucidated before any attempt is made to deduce the truths or doctrines which Christ wished his hearers to draw from the parables which he delivered. The children should be required to give the spiritual meaning of each symbol, in the order laid down in the parable; if they cannot, then the teacher himself should do it. But when he has given the *meaning* of any term, he should always *question it out* of the children, and, on no account, proceed until he is convinced that they thoroughly understand what has been told them. The same remark is applicable to the practical lessons.

Questions on the Parable.

1, 2. To what does the word "another" refer? Explain the expression "put he forth." What did Christ put forth? Define a Parable. What is the *literal* meaning of the word "parable?" What is meant by the kingdom of Heaven? How many other meanings has this phrase? Give them. To what does Christ compare the kingdom of Heaven? What sort of seed was sown? What else was sown besides good seed? What are tares? By whom was this done? When was it done? When did the tares make their appearance? What do you mean by the "blade?" Explain *them* and *also*. To what do these refer? Who came to the householder? What did they say to him? What was his answer? What do you mean by "*this?*" (v. 28). What is an enemy? What had this enemy done? What was the request of the servant? Explain "wilt thou then." What do *we* and *them* refer to? (v. 28). What answer did the servants receive? Why were they not to gather up the tares? What were the servants ordered to do? How long were the tares and the wheat to remain together? What was then to be done with the tares? What with the wheat? Who were commissioned to do this? Who gave them this authority?

3. (a). Who is the sower? Who are meant by the good seed? What does the field represent? What is meant by "while men slept?" Who are referred to by "men?" Who is the enemy? What is meant by "tares?" What by "wheat?" Whom do the

servants represent? Explain, "gather them up." What is meant by the harvest? Who are the reapers?

What represents the *world* in the parable? What true Christians? What refers to the last day? What is employed to represent false doctrines? How are the angels spoken of? What is Christ termed in the parable?

(b). What lessons can you draw from this parable? Wherein is the long-suffering of God shown? What shows the watchfulness of Satan? Where is it shown that those who have joined together to trouble the Church, will receive the same punishment? W. M'L.

ON QUESTIONING.

No. II.

THE main object of catechetical examination is to make the understanding operate upon the memory. A question may be very materially modified to suit the readiness and capacity of the pupil: it may be an obvious inference from the previous question, or may readily indicate the answer from its minute detail. "Who first gave the name of Hibernia to Ireland?" is a question less explicit than "What Roman Emperor gave the name," &c. "What at last became of Phalaris?" is more vague and indefinite than "In what manner did Phalaris die?" "Repeat the names of the four sons of Aaron," is more circumscribed than "Name the sons of Aaron;" here not only the names but the number must be recollected. A young examiner in the course of his daily questioning having caught in the lesson the word house, abruptly exclaimed, with the purpose of examining, "Belonging to the house?" "Furniture" was the innocent, and not incorrect reply, instead of, as was expected by the questioner, the adj. domestic. Every question should be direct and explicit, and without prolixity should rather suggest the answer than leave the pupil to consider, not what the answer should be, but what the question itself is. In the progress of questioning the transition from what is general, to what is specific and minute, is both natural and easy; the most ordinary questions being capable of such gradation, as (speaking of the siege of Troy):

What people besieged Troy?
Why did the Greeks besiege Troy?
What was the result?
Who commanded the besiegers?
Name some of the fugitives.

Some one particular should always form a separate question, which, if complicated, necessarily becomes confused. Conjunctions should never be employed in crowding several details into one question, too many points presented at once to the mind of the pupil distract his attention and render an answer, if not impossible, slow and uncertain. In the question, "Of what shape is the sun; how far is it from the earth; and how many miles is it in diameter?" the figure, distance, and magnitude of the sun should each constitute a distinct question, and would, no doubt, in that form, make a clearer impression on the learner's memory. "What are the different aspects of the planets, and how many are there?" is a question, in which it might be inquired, whether the number of the planets, or the number of aspects, is meant to be answered. "Who built and destroyed the temple of Diana at Ephesus?" is an interrogative which would imply that its building and destruction were parts of the same process by the same hand.

Suggestive questions may readily degenerate into mere statements made interrogatively, and instead of being an intellectual exercise, questioning may thus become an uninteresting and weary iteration; of such the following are examples.

"Was not Edward the First very cruel to the Jews?"
"Does not the sun revolve on its axis?"
"Every quantity is the first power of itself, is it not?"
"Is not the sum of any two quantities multiplied by their differences equal to the difference of their squares?"
"Were the Cloacæ of the city of Rome remarkable for their size?"

Happily, a mode in which the teacher does not trouble himself to think, nor the scholars to reflect, cannot now escape either observation or rebuke. A teacher of ordinary care and capacity would find no difficulty in making the above questions respectively:—

How did Edward the First treat the Jews?
What motion has the sun?
Of what power is every quantity considered by itself?
What is the product of the sum and difference of any two quantities equal to?
What were the Cloacæ of ancient Rome noted for?

Most questions admit of their converse being proposed or at least of some cognate particulars forming a second question; the principal subject thus reproduced, and viewed under a different aspect, is rendered more familiar to the mind. Let us take as an example the most simple and ordinary remark, thus. Four roods make one acre. How many roods make one acre? conversely; in one acre how many roods? What part of an acre is a rood? Whether is an acre or a rood the greater? How many times greater is an acre than a rood? and so on. In applying the same mode of analysis to an entire sentence in actual oral examination, each word in the question which presents the general fact in a new phase, should be emphasized.

"Near Runnymede, in 1215, King John granted Magna Charta."

Where did King John grant Magna Charta?
When did, &c.?
Who granted Magna Charta?
What did King John grant at Runnymede in 1215.
What memorable occurrence took place near Runnymede in 1215?
In what century was Magna Charta granted by King John?
What English monarch granted Magna Charta?

Another method of creating variety and of impressing a fact more deeply on the memory, consists in asking the same question in different words and of thus altering the form, but not the sense of the answer.

Quest. What was the character of Moses?
Ans. He was meek.
Quest. What Christian virtue was Moses noted for?
Ans. His meekness.

"The battle of Bosworth was fought on the 23rd August, 1485."

Who was victorious at the battle of Bosworth?
Who defeated Richard the Third at the battle of Bosworth?
Who gained the English crown by the battle of Bosworth?
Who succeeded Richard the Third on his death and defeat at the battle of Bosworth?

W. T. Y.

ON TEACHING ARITHMETIC.

We have not forgotten our promise to a correspondent to make some suggestions on this subject. The necessity of bringing up arrears on other matters, into which we had fallen, has hitherto prevented us. Even now, however, we do not profess quite to meet the case proposed to us; but we believe we can describe how arithmetic may be taught with success. This we believe, because we think the process ought from the nature of things to succeed, and because we know that in practice it has succeeded. This then is the plan we have to recommend. Let the boys be placed as conveniently as possible at their desks, with their slates or paper before them. We are ourselves partial to paper where circumstances will allow it; for it seems to us that the work is then more neatly done, and habits of neatness are more likely to be acquired. In passing we may ask, whether boys are not often called upon to stand too much and too long at their work. Is not inattention sometimes the effect of physical weariness? When thus placed, let each boy take his arithmetic or algebra, and work away at his own rule or examples; no attempt whatever being made to class them. The teacher meanwhile should walk about among his pupils; and not wait in his seat (as is usually done) till the boys present themselves severally to him and thereby cause no small confusion. By so doing he will easily see that they are all at work; he can encourage and direct those who are equal to what they have in hand; he can help the puzzled over a difficulty, and can take care that the idly-disposed have little opportunity for indulging their propensity. The whole will go on with comfort and profit to the boys, and without the noise and confusion which is inseparable from any other system. Our Trinity College friend may perhaps understand us better, if we add that we are recommending in the outline the plan followed in the Freshman's lecture-room during the mathematical lecture; and it is, we believe, a simple and effective mode of managing the matter.

We are constrained however to remark further that—to be done successfully—this work should be done *two* hours a day for *five* days in the week. It should be looked upon, as it well may, and acknowledged to be a substantial part of schoolwork—not a kind of make-weight, to be attended to at odd times or when the boys are wearied with other work, or (as is sometimes the case) during their play-hours. It is this which is so often fatal to the best scheme, namely, putting it in practice, now and then only, or for half-an-hour, or as a kind of holiday or playtime. Arithmetic is a very important work; and ought not to be thus treated. We are of opinion that twenty boys are enough for one man to teach at a time in elementary subjects, or indeed in any subject unless as a mere lecturer; and that any number beyond that will more or less diminish success.

It remains to be mentioned that one of these five days or the half of two daily periods should be employed in what is called Mental Arithmetic. A most healthy and useful exercise this is, and it will be found an agreeable relief from written work. 'Tis an exercise, however, which we fear is very much neglected, especially in those that are considered upper schools; and this neglect has proved a great injury to the scholars. Questions of the simpler kinds, and by degrees those of a higher order may be given, to the great advantage of the pupils; and the readiness and reach of the answers will soon encourage the teacher, who tries it, to persevere. Multiplications and divisions, Bills of Parcels, all Reductions, some Rule of Three sums, Practice largely, Interest partly, and all the common Rules of Vulgar Fractions are capable of being treated on the mental system. A teacher would also take advantage of such occasions to explain popularly—that is, so that his younger boys would understand him—the use and history of the rules and terms, especially such terms as Stock, Funds, Interest, Discount, Exchanges, &c. This will tend to make the knowledge acquired more real and practical. The ignorance even of big boys and grown-up people in these every-day matters is quite remarkable; and has been already alluded to in this journal. We had almost forgotten to call attention to another important point. In teaching arithmetic or algebra, be constantly turning your pupils back. Frequent going back and repetition of the same sets of examples is the corner-stone of the whole work; and it is probably the neglect of this that makes these subjects, especially the former, so unsuccessfully taught. With this and a sufficiency of time scarcely any system would fail. Never let the boy boast on his return home that he is in Cube Root, when perhaps he could not without prompting work out a single Rule of Three or Practice question.

C. P.

FITNESS FOR OUR WORK.

[We make the following extract from Mr. Ruskin's recent pamphlet on Art, entitled "Pre-Raphaelism," for the sound common sense which it contains, and its universal application, though the subject of the pamphlet does not fall within our range.]

It may be proved, with much certainty, that God intends no man to live in this world without working: but it seems to me no less evident that He intends every man to be happy in his work. It is written, "in the sweat of thy brow," but it was never written, "in the breaking of thine heart," thou shalt eat bread: and I find that, as on the one hand, infinite misery is caused by idle people, who both fail in doing what was appointed for them to do, and set in motion various springs of mischief in matters in which they should have had no concern, so on the other hand, no small misery is caused by overworked and unhappy people, in the dark views which they necessarily take up themselves, and force upon others, of work itself. Were it not so, I believe the fact of their being unhappy is in itself a violation of Divine law, and a sign of some kind of folly or sin in their way of life. Now in order that people may be happy in their work, these three things are needed: they must not do too much of it: and they must have a sense of success in it—not a doubtful sense, such as needs some testimony of other people for its confirmation, but a sure sense, or rather knowledge, that so much work has been done well, and fruitfully done, whatever the world may say or think about it. So that in order that a man may be happy, it is necessary, that he should not only be capable of his work, but a good judge of his work.

The first thing then that he has to do, if unhappily his parents or masters have not done it for him, is to find out what he is fit for. In which inquiry a man may be very safely guided by his likings, if he be not also guided by his pride. People usually reason in some such fashion as this: "I don't seem quite fit for a head manager in the firm of ——— & Co., therefore, in all probability, I am fit to be Chancellor of the Exchequer." Whereas, they ought to reason thus: "I don't seem to be quite fit to be head manager in the firm of ——— & Co., but I dare say I might do something in a small greengrocery business; I used to be a good judge of pease; that is to say, always trying lower instead of trying higher, until they find bottom: once well set on the ground, a man may build up by degrees, safely, instead of disturbing every one in his neighbourhood by perpetual catastrophes. But this kind of humility is rendered difficult in these days, by the contumely thrown on men in humble employments. The very removal of the massy bars which once separated one class of society from another, has rendered it ten times more shameful in foolish people's, *i.e.*, in most people's eyes, to remain in the lower grades of it, than ever it was before. When a man born of an artisan was looked upon as an entirely different species of animal from a man born of a noble, it made him no more uncomfortable or ashamed to remain that different species of animal, than it makes a horse ashamed to remain a horse, and not to become a giraffe. But now that a man may make money and rise in the world, and associate himself, unreproached, with people once far above him, not only is the natural discontentedness of humanity developed to an unheard-of extent, whatever a man's position, but it becomes a veritable shame to him to remain in the state he was born in, and everybody thinks it his *duty* to try to be a "gentleman." Persons who have any influence in the management of public institutions for charitable education know how common this feeling has become. Hardly a day passes but they receive letters from mothers who want all their six or eight sons to go to college, and make the grand tour in the long vacation, and who think there is something wrong in the foundations of society, because this is not possible. Out of every ten letters of this kind, nine will allege, as the reason of the writers' importunity, their desire to keep their families in such and such a "station of life." There is no real desire for the safety, the discipline, or the moral good of the children, only a panic horror of the inexpressibly pitiable calamity of their living a ledge or two lower on the molehill of the world—

a calamity to be averted at any cost whatever, of struggle, anxiety, and shortening of life itself. I do not believe that any greater good could be achieved for the country, than the change in public feeling on this head, which might be brought about by a few benevolent men, undeniably in the class of "gentlemen," who would, on principle, enter into some of our commonest trades, and make them honourable; showing that it was possible for a man to retain his dignity, and remain, in the best sense, a gentleman, though part of his time was every day occupied in manual labour, or even in serving customers over a counter. I do not in the least see why courtesy, and gravity, and sympathy with the feelings of others, and courage and truth, and piety, and what else goes to make up a gentleman's character, should not be found behind a counter as well as elsewhere, if they were demanded, or even hoped for, there.

Correspondence.

WHAT IS THE USE OF WRITING LATIN VERSES?

Sir,—To enable teachers to give an answer to this question, I enclose you a passage from a work to which you have lately called attention. In "Church Clavering" the author has introduced a Mr. Wilkins, holding a conversation with Mr. Primer the Schoolmaster, on the occasion of bringing a new boy to the school. The anxious parent having stated that when John has learnt the accidence, he will have acquired a sufficiency of the learned languages, the following dialogue occurs:—

"*Primer*. That will be as you please, sir; it is a good thing to have learnt the accidence of the Latin grammar, or even the English grammar alone; but it is a small step towards a critical knowledge of language. If your son is a clever lad, I should certainly recommend that he should go on and learn Latin composition, especially verses.

"*Wilkins*. Well, now, I never could make out, for the life of me, what was the use of verses—non-sense verses, as your schoolmasters call them—or sense-verses either, for the matter of that. For, of the scores of boys who are trained up to make verses, I never heard of more than one or two in an age who made anything by poetry. Indeed, poets are proverbial for being poor. Milton, I have heard, only made five pounds by his *Paradise Lost*.

"My good sir, said Mr. Primer smiling, boys do not learn verses for the purpose of being poets, or to make money by their verses. Nine out of ten, perhaps, do not make a verse after they leave school.

"*Wilkins*. What on earth, then, do they learn to make verses for?

"*Primer*. It is to give them an accurate knowledge of language, and of the classical languages in particular; and still more to exercise and strengthen their minds, and render them clear, precise, and discriminating. You will, perhaps, be surprised when I remark, that if a boy never made another verse in his life, or never looked even into a Greek or Latin book after he left school it would still have been of very great use to him.

"*Wilkins*. You do surprise me.

"*Primer*. I would certainly not recommend a young man to give up his Latin and Greek after leaving school, because I believe the keeping up a knowledge of them to be a source of great pleasure as well as advantage. Still, even if circumstances should oblige him to do so, he will have gained an ample benefit in the exercise of mind and the labour which he expended at school. The study of languages, especially the more perfect languages, will open the way to all the variety of human thought. His intellect will have been enlarged, and adapted to close, steady, and discriminating application; and he will have gained, not only a valuable fund of actual knowledge; but a power of acquiring any other sort of knowledge, especially of languages; or engaging with advantage in any other pursuit, to which his energies in after-life may be directed." A TUTOR.

SCHOOL REPORT.

J. S. P. T., in reply to C. S. in the July number, sends the following report, and will be glad if any one will suggest improvements.

REPORT—BOYS' NATIONAL SCHOOL.

This school is conducted by a trained and certificated master, assisted by four pupil-teachers. It consists of 118 boys, between the ages of 7 and 13. They are divided into 4 classes, each of which is under the charge of a pupil-teacher, and the whole are constantly superintended by the master. The first class contains 29 boys, the second 25, the third 33, the fourth 31. The subjects of instruction are the *Holy Scriptures, Church Catechism* with explanation, and (first class) scripture proofs. *Reading*:—first class, Old Testament, and 3rd book of the Irish Commissioners; second class, New Testament, and 3rd book (S.P.C.K.); third class, the 2nd book (S.P.C.K.); and the fourth, the 1st book (S.P.C.K.). *Plain writing*. *Arithmetic*—first class, compound proportion and practice; second class, reduction and simple proportion; third class, the first four rules, simple and compound; and the fourth, numeration and notation. *Grammar. Geography of Great Britain and Ireland, English history*, and *Vocal music*. The school hours are from 9 to 12, and from 2 to 5. The following is the time table.

[Here insert the time table, and append to it any remarks you may think needful in order to give a clear idea of the manner in which the school is conducted:]

The average attendance during the past year has been 91·8. 38 have been admitted into the school, and 34 have left within the last twelve months.

CHINESE HINTS TO STUDENTS.

SIR,—It has occurred to me that the following Chinese hints to students, abridged from Dr. Morrisons's work, may be interesting to some of your readers. In China, above probably every other country in the world, advancement depends upon acquirements. Almost all political aspirants, depend for their promotion on their success at public examinations, three of which must be undergone with credit before the candidate can occupy any of the higher civil posts of government. The subjects of study may not be such as we should esteem very highly, but still, as far as the art of acquisition goes, we might fairly presume that the experience of those who have been students for many ages must be worth recording. I have sent you some of the remarks which appear to me the most valuable.

1. When approaching a public examination the student should shun an eagerness to read too much: if it has not been done before it will then be too late.

2. As an immediate preparation, let him read over twenty or thirty sections of some first-rate work that he may imbibe its spirit.

3. When in a course of study let not the student charge his mind with the mixed and vulgar thoughts of every-day life—they take up room.

4. Let the student keep a common-place book, and, at intervals of ten or twenty days, let him read over again what he has committed to it.

5. There should be no breaks of five or six days during study, on any account. Do not fear being slow, but fear standing still.

6. When reading on a particular subject let the student give up his mind to that alone; for water if put on a fire will at last boil, but will never do so if you keep putting in fresh water.

7. One who has much worldly business to attend to should make a selection of one good prose and one good poetical work, place them on his table, and take them up at every vacant opportunity; not wait till he is entirely at leisure.

8. There are men who have ten thousand volumes, and never read ten of them; such people are below the poor starved scholar who saves a few coins to buy a book, and then, by study makes it entirely his own.

I think you will agree with me that these are the remarks of a sensible and studious people.

I am, Sir, your obedient servant,
B.

Notices of Books.

THE CHURCH IN THE SCHOOL-ROOM: BEING DISCOURSES TO SCHOOL-BOYS. BY THE REV. L. J. BERNAYS, M.A., LATE FELLOW OF ST. JOHN'S COLLEGE, OXFORD. Pp. 224. (London: *Low*, 1851.)

These Sermons differ somewhat from those published of late years, by the masters of our principal public schools, in that they are addressed to younger boys, most of whom are preparing for entrance into larger seminaries. They are interesting and practical, and many of the remarks contained in them are well suited to the circumstances of those to whom they were addressed. They may be read with advantage either *to* young people or *by* them. Such topics as "concealment of the truth," "speedy forgetfulness of faults," "misuse of vacations," "finding pleasure in giving pain to companions," "spending comparatively large sums on the mere gratification of the lowest of the senses," and other trials and troubles of a young school-boy's life, are touched upon in these discourses in a natural and effective manner. We would recommend them to those engaged in the work of education as affording some valuable hints upon subjects respecting which the young often greatly stand in need of counsel and advice.

THE STUDENT'S THEOLOGICAL MANUAL: COMPRISING THE HISTORY OF THE CANON, THEOLOGICAL EVIDENCES, BIBLICAL ANTIQUITIES, OLD AND NEW TESTAMENT HISTORY, CHURCH HISTORY, DOCTRINE, AND PROPHECY. BY REV. GEORGE HENRY PRESTON. Pp. 270. (London: *Seeleys*, 1850.)

Brevity and distinctness are the objects which the author professes to have chiefly aimed at in this work, and in these respects he has been successful, especially in the subjects which stand first in the title page. The outline which precedes each subject, is very clearly drawn out both in the arrangement and the printing, as are also the remarks made under each head in the chapter devoted to it. The references in the margin to original works are not always so full as might be wished; but this is of less moment, because the work is not to be regarded as a theological text book, but rather as a manual to assist students either in arranging knowledge already acquired, or in suggesting the principal topics to which attention should be directed, and the order in which those topics may be profitably studied. In these respects those who are reading by themselves will find this work a useful compilation.

THE FAIRY GODMOTHERS; AND OTHER TALES. BY MRS. ALFRED GATTY. Pp. 154. (London: *Bell*, 1851.)

These tales are written in a very pleasing style, and are likely to impress upon the minds of youthful readers the valuable lessons which they are intended to convey. By introducing fairies as the ruling powers in her tales, the author is enabled to dispense with much of the machinery of a regular story, and thus to produce striking illustrations of important truths, which are the more agreeable and natural because they appear to be constructed without artifice. In an age when so much time is wasted in reading works of fiction which are worse than useless, we are happy to have it in our power to recommend stories from Fairy Land, which, whilst they amuse, will also teach the young something of the nature of the love of God, of the blessing of a trust in His protecting omnipresence, and of the unquestionable, though often forgotten truth—that a love of employment is more likely to confer happiness on its possessor than beauty, or riches, or all the mere pleasures of life.

A COLLECTION OF SECULAR MUSIC, FOR THE USE OF SCHOOLS. BY JAMES TILLEARD. (London: *Novello*.)

A companion volume to the Collection of Sacred Music, by the same Editor, consisting of native compositions and adaptations from foreign sources. It is a cheap and excellent collection for the purpose. We extract some useful remarks for the guidance of teachers:—

"It will be found that the unsatisfactory state of our school-singing is in great measure attributable to the want of attention to *rhythm* and *time*. By *rhythm* in music is meant the relative duration and accentuation of the several notes of a melody, and it is obvious that musical expression must mainly depend upon due attention to these two points. With the music always before them, the children will not be likely to go wrong in respect to the duration of the notes; but it will still be necessary to enforce a strict attention to the accentuation. It is generally understood that certain notes of a bar of music are more strongly accented than others; but the mistake is to suppose that the accent falls *naturally* upon these notes, and so requires no effort on the part of the singer. Rigid accuracy in the rhythm, however, will be of little use unless the songs are sung strictly in time; for the character of the melody, as a whole, depends just as much upon the time as that of its parts does upon the rhythm. In most of our schools, the children are allowed to sing very much too *slowly*, and, as a consequence, they sing carelessly; more rapid singing, and that in perfect time, will be the first step towards producing an animated expression, and will thus lead them to look upon the music as an enjoyment, and not as an irksome task. Their interest in the singing will be still further increased if they are constantly required to pay attention to the modulation of their voices, so as to produce the proper variety of effect. Not only should the marks of expression be carefully observed, but the rule should always be put in practice, that ascending passages are to be sung *crescendo*, and descending passages *diminuendo*. In mixed schools, and wherever the boys and girls can be brought together for the practice of music, it will be found a good plan to allow them to sing the verses of the songs alternately."

EXAMINATION PAPERS, ROYAL NAVAL SCHOOL, GREENWICH HOSPITAL.

MIDSUMMER, 1851.

Nautical School.

SECTION I.—1. A ship sails S.W. by S. 24 miles; N.N.W. 57 miles; S.E. by E. ½ E. 84 miles; and S. 35 miles; find the course and distance made good.

2. A ship runs N.E. by N. 18 miles in 3 hours, in a current setting W. by S. 2 miles an hour; required the course and distance made good.

3. A ship plying to windward with the wind at N.N.E., after sailing 51 miles on each of two tacks, was found to have made 36 miles difference of Latitude. How near the wind has she sailed?

4. A ship from a port in latitude 57° 9′ N., longitude 2° 9′ W., sailed 82 miles on a direct course, and spoke a ship which had run 100 miles from a port in latitude 56° 21′ N., longitude 2° 50′ W. Required the course of each ship and the longitude and latitude come to.

SECTION II.—1. The *true* meridian altitude of a circumpolar star above the pole was found to be 26° 33′ 50″, and below it, 24° 14′ 30″. What was the latitude?

2. At $2^{h}\ 22^{m}\ 25^{s}\cdot62$ mean time at Greenwich, what is the sidereal time: the sidereal time of the previous mean noon having been $18^{h}\ 47^{m}\ 55^{s}\cdot42$?

3. In latitude 2° 45′ 15″ N., longitude 104° E. at $4^{h}\ 6^{m}\ 12^{s}$ P.M., apparent time, the magnetic azimuth of the ⊙ was N. 287° 41′ E., determine the variation of the compass. The ⊙'s north polar distance 70° 30′ 6″.

SECTION III.—1. Travelling towards a mountain, I observe the angular elevations of its summit, at two points, distant 2½ miles from one another, to be 22° 11′ and 35° 17′ respectively. What is its height?

2. On the 5th of December, 1850, the meridian altitude of the sun's lower limb was 25° 29′, the zenith was N. of the sun, the ship's longitude 73° E., and the height of the eye 22 feet. Required the latitude.

3. In longitude 37° W. at $7^{h}\ 43^{m}\ 35^{s}$ mean time, the altitude of the pole-star, when corrected, is 46° 17′ 28″, the sidereal time of the previous Greenwich mean noon having been $22^{h}\ 56^{m}\ 18^{s}$. Required the latitude.

SECTION IV.—1. On the 3rd of September, 1850, the sun was observed to pass the meridian at a place in 30° east longitude at $0^{h}\ 12^{m}\ 15^{s}$ P.M. by watch. What was the error of the watch from mean solar time?

2. July 6th, 1850, the ⊙'s meridian altitude at midnight was $\overline{\overline{\odot}}$ 25° 50′ 15″. Index error − 3′ 15″. Longitude nearly 10° E. The barometer 40·15. Thermometer 31° Fahr. Required the latitude.

3. May 25th, 1850, in latitude 9° 35′ S. nearly, longitude 144° E., the following observations were taken near noon to determine the latitude :—

	h.	m.	s.		°	′	″	
App. time	11	58	34	$\underline{\underline{\odot}}$	118	29	40	Index error + 30″.
	11	59	14			30	20	
	11	59	55			30	0	
	12	0	46			29	40	
	12	1	37			29	20	

Required the latitude.

	°	′	″
SECTION V.—1. Apparent distances of centres of ⊙ and ☽	107	0	19
Apparent altitude of ⊙'s centre	25	52	0
True ,, ,,	25	50	12
Apparent altitude of ☽'s centre	8	58	0
True ,, ,,	9	45	51

Compute the true distance of the centres,

2, December 29th, 1850, the following observations of equal altitudes were made at Funchal. Latitude 32° 38′ N. Longitude 16° 55′ W.

		h.	m.	s.
A.M.	- -	10	51	43·8
P.M.	- -	2	57	16·1

Determine the error of the chronometer from mean time at place ; and also the longitude ; the chronometer on the 18th of December being slow of mean time at Greenwich 13^m 8^s, losing daily 0·34^s.

Lower School.—1st Class.

SECTION I.—Prove the following rules :

rad : sec. lat. :: any portion of parallel : like portion of equator.
Cos. mid. lat. : dist. :: Sin. course : diff. long.
diff. lat. : diff. long. :: Cos. mid. lat. : tan. course.

SECTION II.—1. Describe and explain the sextant, and show how its error may be determined.

2. What is meant by sidereal time, and what by mean solar time ; from what cause does the difference between them arise, and how may one be calculated from the other ?

3. Investigate the formula for determining the latitude from an observed altitude of the sun ; the mean time at the place and the longitude being given.

SECTION III.—1. A port bears S, 52° W., the current sets S.S.E. 2 miles an hour ; the present rate of sailing 7 knots : shape the course so as to keep the port on the same bearing.

2. Find the course and dist. between C. Sierra Leone in lat. 8° 30′ N., long. 13° 8′ W. and C. San Roque, lat. 5° 28′ S., long. 35° 17′ W., 1st by mid. lat. sailing ; 2nd, by Mercator's sailing ; 3rd, by great circle sailing.

SECTION IV.—1. On the 24th of May, 1851, in long. 25° W. the meridian altitude of the sun's lower limb was 81° 20′ 3″ towards the south. Height of eye 33 ft., index error + 1′ 30″. Find the latitude.

2. October 15th, 1850, at 8^h, P.M. on the coast of Spain, and nearly on the meridian of Greenwich, observed ☽ 39° 49′ 30″ ; index error + 35″ ; height of eye 20 feet. Required the latitude of the place ; the supposed latitude being 34° north.

3. July 21st, 1850, the setting amplitude of ⊙ in latitude 27° 32′ S., longitude 170° E., was W. 23° 15′ N. by azimuth compass. Required the variation. (Greenwich date 20d. 18h.)

SECTION V.—1. Sept. 28th, 1850. Of the Ferroe Islands, lat. 68° 7′ north, at 4^h P.M.

Time chron. $3^h\ 53^m\ 49{\cdot}8^s$ ☉ 10° 8′ 12″
Index error — 4′ 50″. Height of eye, 17 feet.
Determine the errors of the chronometer from Greenwich mean time ; assuming the longitude of place of observation to be 7° 55′ 0″ west.

2. ☉'s true alt. 36° 16′ 14″ ☽'s true alt. 12° 12′ 10″
☉'s appt. alt. 36° 17′ 24″ ☽'s appt. alt. 11° 22′ 13″
apparent distance of centres of ☉ and ☽, 66° 27′ 46″, required the true distance.

3. On 5th November, 1851, $\left\{\begin{array}{l}\text{Lat. } 35^\circ\ 53'\ 50''\ \text{N.}\\ \text{Long. } 14^\circ\ \text{E.}\end{array}\right\}$ at $8^h\ 47\ \ 26^s$ A.M. apparent time, compute the apparent altitude of the sun's centre.

Lower School.—1st and 2nd Classes.

SECTION I.—1. If at a point in a given straight line, two other straight lines on the opposite side of it make the adjacent angles together equal to two right angles, these straight lines are in one and the same straight line.

2. To describe a square which shall be equal to a given rectilineal figure.

3. Upon a given straight line to describe a segment of a circle which shall contain an angle equal to a given rectilineal angle.

SECTION II.—Solve one of the following equations :—

$$1.\ \ \frac{2x+3}{4} + \frac{4x}{3} = \frac{1}{x} + \frac{6x+2}{3} = \frac{x+1}{6}.$$

$$2.\ \ \frac{3x-5}{2} = 12 - \frac{2x-4}{3}.$$

$$3.\ \ \left.\begin{array}{l}\frac{1}{2}x + \frac{1}{3}y = 4\\ \frac{1}{3}x + \frac{1}{2}y = 3\frac{1}{2}\end{array}\right\}$$

$$4.\ \ \frac{x-3}{x+2} = \frac{1}{2} + \frac{x-3}{2x-1}.$$

SECTION III.—1. A draper bought some pieces of linen for 63*l*., and having reserved two, disposed of the remainder for 60*l*., clearing 10*s*. on every piece he sold. How many pieces did he buy ?

2. I have a number of halfpence which I try to arrange in a square; on the first trial I find that I have 130 over; I then enlarge the side of the square by 3 and find that I have 31 over. How many halfpence have I ?

3. Two men have to plant a trees in a straight line b feet apart, carrying each tree separately from a heap at one end of the line. How shall they divide the line so that one planting one part of it and the other the othe part, they may have to walk equal distances ?

SECTION IV.—1. Prove the following formulæ of trigonometry :—

$$\text{rad}^2 + \tan^2 = \text{cosec}^2 \qquad \sec = \frac{\text{rad}^2}{\cos} \quad \text{Cot} = \frac{\text{rad}^2}{\tan}$$

2. Show that in any right-angled triangle ACB, whose right angle i C, BC = AC tan A.

3. Cos (A + B) = Cos A Cos B — Sin A Sin B.

SECTION V.—1. A labourer working with a wheel and axle 8 hours a day can yield at the rate of 2600 units of work per minute. How much must he charge per ton for raising coals from a depth of 25 fathoms that he may earn 2*s*. 6*d*. per day ?

2. The section of a stream is 5 feet by 7, and its mean velocity 15 feet per minute ; there is a fall upon it of 11 feet, working a wheel which yields ·6 of the work the water is capable of doing ; how many quarters of corn is the mill capable of grinding, allowing a bushel per hour per horse power ?

3. How many horses, each exerting a traction of 200 lbs., would be required to draw a waggon, weighing, gross, 5 tons, up a hill whose inclination is 1 in 18; the traction on the level road being estimated at 1-20th of the load?

SECTION VI.—1. How is it known that the earth is not an infinitely extended plain, as it seems to be? Give one reason, and that the simplest.

1. Explain the phenomena of the seasons.

3. What principal change would appear in the heavens to a person who watched them at the same place night after night for a year?

A sentence will be read to you, which you are to write down carefully, and spell correctly.

Nautical School.

SECTION I.—Correct the following sentences, and assign the grammatical reasons for the corrections you make:—

"His friends has forsaken him."
"No man is more happy than him."
"It is me."
"We ought always to act as justice and honour requires."
"The fleet is all arrived in safety."
"Thou which has been a witness of the fact, can give an account of it."
"I hope it is not I who you condemn."

SECTION II. Describe the most remarkable periodical winds, and account for them. What law has been observed in hurricanes?

2. What are the prevalent currents of the ocean? Account for them.

3. What are the principal food of plants? Give some account of their distribution on the earth's surface.

SECTION III.—1. Write down what you know of France.

2. What countries compose the British Empire? By what races of men are they inhabited? How are they governed? In what does the commerce of each chiefly consist?

3. Give some account of the political divisions of South America, and of its physical geography.

SECTION IV.—1. How many yards of cloth, at 1*l.* 3*s.* 6*d.* per yard, can I buy for 50*l.*?

2. What is the difference between $\frac{7}{8}$ of a cwt. and $\frac{3}{8}$ of a ton?

3. Two clocks point out 12 at the same instant: one of them gains 7″ and the other loses 8″ in twelve hours: after what time will one have gained half an hour on the other, and what o'clock will each then show?

4. How many cubical feet of planking, $\frac{3}{4}$ inch thick, will it take to make the floor of a room whose dimensions are 36 feet 7 inches by 22 feet 11 inches?

SECTION V.—1. The two sides AC and AB of a triangle are respectively 514 and 317 feet in length, and the included angle A is 19° 15′ 3″. Find the side BC.

2. Find the value of the following expression by logarithms:—

$$\frac{\sqrt[3]{5{\cdot}1362} \times \sqrt{{\cdot}0275}}{2{\cdot}3527}$$

Lower School.—3rd Class.

A sentence will be read to you, which you will write down carefully and spell correctly.

1. Draw a map of England.

2. Write down in words the number represented by the following figures: —30,050,601.

3. How many years was it from the building of Solomon's Temple, in 1012 B.C., to that of St. Paul's Cathedral, in 1688 A.D.?

4. Multiply 357,962 by 2705.

5. Subtract 359*l.* 11*s.* 6¼*d.* from 400*l.*

6. The difference of two numbers is 171,321, and the greater is 479,328; find their product.

7. Having a sum of 5000*l.* to lay out, I buy with it three houses, one of which costs me 1029*l.* 15*s.* 6*d.*, another 1165*l.* 14*s.* 8*d.*, and the third 2563*l.* 11*s.* 9*d.* How much have I left?

8. In 375,698 lbs. how many tons?

9. If 68 cwt. 1 qr. 18 lbs. cost 286*l.* 14*s.* 11¼*d.*, what will 3½ lbs. cost?

10. A coach wheel which is 9 ft. 6 in. in circumference, makes 14 revolutions in 15 seconds; at what rate per hour is the coach travelling?

Lower School.—4th Class.

A sentence will be read, which you are required to write down carefully and spell correctly.

1. Correct the grammatical construction of the following sentences:—

"Those set of books was a valuable present."
"This is he who I gave the book to."
"William and I am cousins."

2. Draw a map of England.

3. Multiply 92948789 by 7043.

4. Divide 75843639426 by 8593.

5. Reduce 371*l.* 14*s.* 10*d.* to halfpence.

6. Find the 11th part of 7*l.* 8*s.* 6¾*d.*, and the 9th part of 36*l.* 4*s.* 9*d.*

7. How much money must I add to 340*l.* 7*s.* 9*d.* to make the sum of 500*l.*? And how much must I take from 59*l.* 13*s.* 6¾*d.* to make the remainder 18*l.* 11*s.* 5½*d.*?

8. What is the price of 72 reams of paper at 13*s.* 8*d.* per ream?

9. How many dozen bottles of wine may be filled from 15 pipes, each pipe containing 53 dozen 7 bottles?

10. If 47 lbs. cost 34*l.* 10*s.* 3 *d.* what will 1 lb. cost?

11. If 2 cwt. 46 lb. cost 13*l.* 10*s.*, how many cwt. may be bought for 5*l.* 12*s.*?

12. Add together $\frac{5}{13}$ and $\frac{6}{11}$.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 107.—*Proposed by Sam. Dyer.*

Given $82 - \frac{81}{3^{3x}} = 3^3{}_x$ to find x.

Answered by Mr. Hill, Mark, Mr. Morris, Mr. Abbott, Mr. Henry, and the Proposer.

By multiplication and transposition.

$$3^{6x} - 82 + 3^{3x} = -81,$$

completing the square.

$$3^{6x} - 82 \times 3^{3x} + 41^2 = -81 + 41^2 = 1600,$$

$$\therefore 3^{3x} - 41 = \pm 40,$$

$$\therefore 3^{3x} - = 81 \text{ or } 1.$$

Hence we have the two equations.

$$3^{3x} = 3^4, \text{ and } 3^{3x} = 3^0,$$

From the first equation, we get

$$3^x = 4, \therefore x = \frac{4}{3},$$

From the second, $3 = 0$, or $x = 0$.

QUES. 108.—*Proposed by Prismoid, Tewkesbury.*

Six equal circles are described within a given circle, in contact with one another and the given circle; required the area of each.

Answered by Mr. J. Sheppard, Mr. Sothern, Mr. Righton, H.P., A.M., and the Proposer.

The six equal circles will be inscribed in the six equilateral triangles formed by joining the centre of the given circle, and the angular points of a hexagon circumscribed about. Let r = the radius of the given circle; then

$$\text{The height of each of the triangles} = r,$$

$$\therefore \text{ The radius of each inscribed circle} = \frac{r}{3},$$

$$\therefore \text{ The area} \quad ,, \quad = \frac{\pi r^2}{9}$$

QUES. 109.—*Proposed by Mr. Herbert.*

At what time between 11 and 12 o'clock, are the hands of a clock approaching the 12 with the same velocity?

Answered by T. T. T., the Proposer, and Mr. Sheppard.

Let $2x$ = the No. of degrees, on the dial, that the short hand is from XII; then $24x$ = the No. of degrees that the long one is from XII.

The rectilineal distance of the short hand = 2 Sin x, and „ „
„ „ long hand = 2 Sin $12x$.

Now the differential coefficient of these distances will give ratio of the velocities of the two hands in their approach to the 12 upon the dial; hence we have

$$\frac{d.\,(2 \sin x)}{dx} = 2 \cos x,$$

$$\frac{d.\,(2 \sin 12x)}{dx} = 24 \cos 12x,$$

$$\therefore 24 \cos 12x = 2 \cos x,$$

$$\therefore 12 \cos 12x = \cos x,$$

which gives the equation from which x may be determined; but as the general solution of this equation involves considerable difficulties, we shall determine x by the following easy method of approximation.

As the short pointer must be less than five minutes from the XII, it follows that x must be less than 9° from this point. Now the cosine of 9° is very nearly unity; hence we get very nearly

$$12 \cos 12x = 1,$$

$$\therefore \cos 12x = \frac{1}{12} = \cdot 083333,$$

$$\therefore 12x = 85^\circ\,13', \text{ and } 24x = 170^\circ\,26' \text{ nearly},$$

which is the distance, in degrees, of the long pointer from XII. Reducing this angular distance to minutes of time, we get the required time to be $28\frac{7}{45}$ min. before XII.

QUES. 110.—*Proposed by Mr. Righton.*

Determine the segment of a sphere so that the ratio of its solidity to its convex surface may be a maximum.

Answered by Mr. Herbert, Mr. Hill, Mr. Sheppard, Mr. Henry T. Sothern, and the Proposer.

Here the solid units in the segment divided by the superficial units in the convex surface of the segment, are to be made a maximum. Let x = the height of the segment, and r = the radius of the sphere ; then we get

$$\text{Convex surface segment} = 2\,\pi\,r\,x.$$

$$\text{Solidity segment} = \pi\,x^2\,(r - \tfrac{1}{3}\,x).$$

$$\therefore \frac{\pi^2 (r - \frac{1}{3}x)}{2\,\pi\,r.x} = \frac{x\,(r - \frac{1}{3}x)}{2\,r} - \text{a max.};$$

$$\therefore y = x\,(r - \frac{1}{3}x) = \text{a max.},$$

$$\therefore x = \tfrac{3}{2}\,r.$$

$$\because \frac{dy}{dx} = r - \frac{2}{3}x = 0.$$

Whence the height of the segment must be $1\frac{1}{2}$ time the radius of the sphere.

LIST OF MATHEMATICAL ANSWERS.

T. V. Henry, ans. 107, 108, 109, 110; H. Hill, Mortlake, ans. 107, 108, 110; Prismoid, ans. 107, 108, 110; T. Laurie, Oundle, ans. 108; J. Rowlatt, Evercreech, ans. 107, 108, 110; E. Carther, Roehampton, ans. 108; T. Sothern, Burtonwood, ans. 107, 108, 110; Mark, ans. 107, 108, 110; G. Morris, Gosport, ans. 107, 108, 110; J. Draper, Rochester, ans. 107, 108; J. Bolton, O. Malton, ans. 107, 108; Sam Dyer, Wanstead, ans. 107, 108, 110; W. Righton, ans. 107, 108, 110; A. M. ans. 107, 108, 110; H. P., Newcastle, ans. 107, 108, 110; J. Herbert, Wootton, ans. 107, 108, 109, 110; T. Abbott, Twickenham, ans. 107, 108.

NEW QUESTIONS,

TO BE ANSWERED IN OUR NUMBER FOR NOVEMBER, 1851.

QUES. 111.—*Proposed by P. T.*

A silver shield in the form of an octagon weighs 150 oz., and is ·09 inches thick; required the length of the side.

QUES. 112.—*Proposed by Mr. Draper, Rochester.*

Given a and b the parallel sides of a trapezoid inscribed in a circle, and the obtuse angle double the acute angle; to find the area of the trapezoid.

QUES. 113.—*Proposed by Mr. O'Clazey, Durham.*

Being a friend of the cold-water system, I intend to make a circular pond in the front of my house, and a circular island in the centre, raised a feet above the surface of the water, which is to be d feet deep: I request the aid of my Journal friends, to tell me the breadth of the water, so that the excavated earth may just raise the island to the height required.

To Correspondents.

K. P. in his communication about Sunday Schools, goes over the ground again in some respects, and his letter would need alteration before it could be printed. It is reserved for notice in a further paper upon the subject, so far as its suggestions can be used, and we shall be glad of any further remarks on the same subject from other quarters.

THE GREAT EXHIBITION.

The Great Exhibition of the Industry of all Nations, so far as it was only a vast and magnificent spectacle, has passed away from our sight like an airy pageant. It has no longer the charm which arose from the anticipated gratification of a rational and refined pleasure in beholding its wonders, but it now only appeals to our calm and deliberate reason as a great historical fact, of which all that remains to us is the name and the remembrance. We feel that a source of intellectual enjoyment of the highest order has been suddenly cut off from us, and we stand gazing in the same direction in which we had beheld the sight, as if it were still before our eyes. Kind Memory, however, still causes the gorgeous pageant to rise up before our minds, and patiently holds up the picture while we take another long and lingering look.

Our mind's eye eagerly seeks out those separate objects which most attracted our attention, and made the strongest impress upon our imagination. The Crystal Fountain, with its fairy lightness and rainbow hues, still seems to play in the centre of that wondrous fabric, surrounded by a living throng of all ages, admiring its beauty, and, as it were, doing homage to the genius of the palace. The glistening brilliancy of the Queen of Spain's and the Czarina's Jewels, and the steady blaze of lustre of the Golden Service from America, are still vividly before our minds. We still see the crowd of people round the Mountain of Light, gazing with a sort of desperation, as if to force themselves to believe that they were beholding something wonderful, and accusing their eyes of attempting to deceive them; and again we see them drop away one by one, with disappointment pictured in their faces, ashamed of the injustice they have done to fame, and abashed at having vainly struggled against the wisdom of ages, which saith that "seeing is believing." We find ourselves once more standing before the Milanese Window, in presence of the great Dante and his Beatrice. The material medium and the painter's art have vanished, and these figures have been transferred to our memories, and will continue there as real as if we had seen the bodily forms and moving life of the poet and his "donna pietosa;" whereas, before, our ideas of them were too spiritual to have a permanent place in our imaginations. The scenes surrounding them have fallen back into their places in the truly divine song, for no prominence conferred on separate parts can make us regard it otherwise than as a great and marvellous whole. Yet a light has been shed over all the other scenes, which now present themselves more vividly to our minds, as they pass in quick succession, and have altogether a deeper meaning and more lively interest for us than they had before. Again we picture to ourselves the magnificence of the princely house of Esterhazy, when we recall those doors of costly malachite; and we meditate upon the mysterious changes which have, under the providence of God, been wrought in the fortunes of mankind by that very Industry to which this glorious temple had been raised, when we think that this splendour has passed from the palace of a prince whose nobility is derived from the remote ages of Chivalry to the mansion of a merchant, the representative of the true aristocracy of the Industrial centuries.

Nor do we allow ourselves to be carried away entirely by the more gaudy parts of the picture, though these at present have the greatest hold upon our imaginations; our judgment after this first *éblouissement* will not allow us to forget that significant collection of the implements of British Industry. We do not there stand gazing at particular objects, for wonderful and ingenious though we acknowledge them to be, they have no charm for the outward eye; but the whole of them rise before the mind as a great general aggregate, with a collective importance, which throws every mere sight into the remotest regions of the memory. The genius of Britannia presides over this department, and triumphantly declares it the source of all her greatness. With the large soul and impartial spirit of a loving mother, she commands her handmaids, Art and Commerce, to provide for the wants of all her children, and not to confer splendour and luxury upon the few, and leave the many to their destitution. She is not ashamed of the rude implements with which this lofty purpose is to be accomplished; she points to her people as her only care, and declares that whatever administers to their welfare shall be ennobled by her peculiar love and protection. She is ready to teach the nations gathered around her the secrets by which she has conferred a lasting prosperity on her people, and in her turn to reap the benefit of their experience; but whatever knowledge she gains from them she purposes to apply to the improvement of what she has already begun, for she knows that she would mistake her destiny, if she were lightly to abandon her present course, and seek to rival others in matters for which she has no vocation.

Having thus selected for our contemplation objects which represent in the highest degree the two main features of the Exhibition, the grandeur of its display, and its practical bearing upon the economy of labour, we once more seek to realise the whole spectacle in all its vastness and magnificence. Even the picture which Memory thus conjures up, though but a faint representation of the reality itself, we cherish with a fond regret; and the consciousness that it is a picture strikes us with regret still deeper, for we may not conceal from ourselves that it cannot withstand the hand of Time, before which all traces of the splendour we beheld will "vanish clean out of our sight."

It was indeed most appropriate for the members of the Executive Committee, on the closing day of the Exhibition, to take their leave of the public in the words of Prospero :—

"Our revels now are ended; these our actors,
As I foretold you, were all spirits, and
Are melted into air, into thin air:
And, like the baseless fabrick of this vision,
The cloud-capp'd towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve;
And, like this insubstantial pageant faded,
Leave not a rack behind."

It now behoves us to leave regrets, and set ourselves seriously to inquire what will be the beneficial influence of this great World's Fair, so far, at least, as our own nation is concerned. Already is this question engaging the minds of our countrymen, for Englishmen are not much given to regretting. The broad general results of the Exhibition, which concern the progress of Manufactures and Commerce, have been discussed at great length by our contemporaries. These do not come within our province: we have only to deal with such as have a direct reference to Education; but these are by no means few in number or small in importance.

First of these we may, perhaps, place that to which His Royal Highness Prince Albert made allusion, in his reply to the Executive Committee on the occasion of the closing ceremony, when, speaking of the grant of the council medal for beauty of design and for excellence in the fine arts, His Royal Highness said: "Valuable as this Exhibition has proved in many respects, it appears to the Commissioners that there is no direction in which its effects will be more sensibly and immediately perceived than in the improvement which it may be expected to produce in taste, and the impulse it has given to the arts of design." The public are aware that a Committee has been appointed by the Lords of the Board of Trade for the purchase of such articles in the Exhibition as may be calculated to diffuse a correct and refined taste, and that the collection when formed will be made available to the Government Schools of Design which have been established in the manufacturing districts. We may thus expect that the reproach that has hitherto lain upon us, of being behind our neighbours the French in art-manufacture, will ere long be removed, especially as the Government have taken measures, as intimated in this Journal, for developing the Schools of Design, by establishing a connection between them and common elementary schools in the study of drawing. The *æsthetic* training of the mind is not, as many suppose, a thing of small moment. Not only do we confer, by this means, a gratification to the eye and the intellect of the purest and most refined description, but we influence the very mode of thought, and consequently the whole character; for we all know and feel that the "hue of thought" depends greatly upon the environment in which we are placed, and even upon particular objects which accidentally meet our view. Who doubts for a moment that there is a deadening and almost demoralizing effect produced upon the minds of the poor in our large towns by the squalid and ungainly hovels and rookeries in which they are condemned to pass their days; or that, on the contrary, the stately mansions and princely squares inhabited by the wealthy exert a correspondingly great amount of influence for good upon their minds, and contribute largely to their refinement? Besides this, if we enter the dwellings of the poor, we find them surrounded by objects of the rudest and coarsest design; and here again they are debarred from a source of enjoyment and education always open to the wealthier classes. But it is possible to "clothe the articles required for the use of daily life with beauty that can please the eye and instruct and elevate the mind;" and there is no doubt that the encouragement which the Exhibition has given to the application of taste in this direction, and the means which the Board of Trade have adopted in order to promote art-education among the people, will lead to results of greater value than would be anticipated by careless thinkers. The country will cordially agree with the Prince, that "a special acknowledgment was justly due to those who had afforded the best examples of art, whether pure or applied, and led the way in this interesting career of improvement."

Another educational result which some people expect to follow from the Exhibition is thus referred to by one of our contemporaries: "Some think that we must effect a radical change in our educational system—that we must substitute living science for dead literature, and distribute the honours and rewards of life in channels where they may fructify to the use of the commonwealth, instead of being limited to the learned professions, the military and naval services, and the residents of our universities." It is indeed much to be regretted that our universities should have so long neglected to provide efficiently for the teaching of physical science; but the improvement in this respect has already commenced—new professorships, with this object, have been founded, though with endowments, perhaps, scarcely commensurate with their importance. Much good may be expected to result in particular from the University Commissions, which will make the provision for teaching science a matter of special inquiry. Nothing could more forcibly impress upon our minds the necessity for this change than the experience of the Exhibition. When we see that our manufactures and commerce, our agriculture and inland communication, in fact, our whole outward prosperity, depend so materially upon the application of science, it becomes us as a nation to diffuse the knowledge of scientific truths widely among the members of the community, so that the country in return may reap the advantage of new discoveries and new inventions to the fullest possible extent. In many of our elementary schools, we are glad to be able to say that attention has been given to teaching the science of common things, after the example of Battersea and King's Somborne; but much more may and should be done, for such teaching is especially needed by the industrial classes, both because their occupations are often in the midst of scientific operations, and because a genius for mechanical invention exists, as a natural result of these occupations, to a greater extent among them than among the higher ranks of society. The expense of purchasing apparatus need be no obstacle, for everything that is required for performing ordinary experiments may be constructed by the common blacksmith and carpenter of the village for the most trifling outlay. It would be very desirable that means should be afforded to the students in our training schools for acquiring sufficient skill in carpentering to enable them to make little things of this kind for themselves. There are many of our schoolmasters who already possess this skill, and they find it a great advantage to them in preparing lessons on experimental science.

Our middle schools are in this respect very far behind-hand: there are, indeed, very few of them in which any attempt has been made to teach the most elementary matters of science. This would soon be effected, however, if parents, understanding themselves the utility of such knowledge, would require it to be taught to their children, as in the case of other matters of practical importance. This will prove of more real use to their children than a superficial acquaintance with Greek and Latin, which will never be of any service to them; for the boys at our middle schools do not study these languages long enough for the tone of their minds to be in any sense influenced by classical literature. There is no reason, however, why both science and language should not be taught side by side in these schools: we only object to the exclusive teaching of the one to the total neglect of the other.

With regard to the " honours and rewards" of life, we are quite of opinion that it would be advantageous to the country if the two universities would grant degrees solely for attainments in physical science, and, what is more substantial, confer fellowships upon men eminent in this department. This would be the means of inducing a larger number of persons to concentrate their attention and energies upon science, and would thus produce a higher degree of excellence in it than would otherwise be attainable. Steps have already been taken in this direction, and we may hope that these are the harbingers of further progress.

There is a very important result about which we are able to speak with great confidence, considering that it has become increasingly manifest since the very first day of the Exhibition. We mean the alteration it has produced in the disposition of the people at large towards foreigners. This may be regarded as the education of one people to a proper bearing towards others. Before this great gathering of the nations, it was comparatively unusual for foreigners to be seen in this country. Nay the specimens of them that were seen (with their hirsute faces and slouched hats, and with their dirty pipes dangling out of their mouths,) were not such as to inspire an Englishman with very great respect. Besides, the jealousy entertained by our tradesmen against foreign competition, and our old national antipathy to the French, the natural result of our incessant wars with them, had not died out, and had even extended itself, in the minds of ignorant people, to the Germans, and other nations, with whom we never were at war; in fact, they were all included under the general denomination of Frenchmen, and treated accordingly. But the thousands of good-looking and well-dressed foreigners, who came over from the Continent during the Exhibition, with their uniformly courteous conduct, have convinced us that we have been doing them a great injustice; while the superior excellence of many of the objects exhibited by them over our own productions of the same class, and the great amount of skill and ingenuity displayed by their contributions generally, have shown us that they have made quite as much progress in the arts and sciences as ourselves and in some directions even more.

We trust, finally, that the Exhibition will in the widest sense contribute to the promotion of national charity, and we are sure that the closing petition of the prayer which the Bishop of London offered up to Almighty God on the last day of the Exhibition will be re-echoed throughout the land: " Grant, O Lord, that this gathering of thy servants from every nation may be the token and pledge of a continued intercourse of mutual kindness between the different branches of Thy universal family. May it contribute to the growth of Christian love and hasten the coming of that blessed reign of peace, when nation shall not lift up sword against nation, neither shall they learn war any more."

CORPORAL PUNISHMENT.

(*Concluded from page* 367.)

Every system of government rests ultimately on its penalties. Yet there is no part of government which receives so little reviewal as its penal code, and which has to wait so long for revisal. A hundred pages are written on the methods and subjects of education, for one that treats of its sanctions, or endeavours to weigh well the punishments by which it is to be enforced. This must be our apology for detaining our readers a few minutes longer on a subject rather necessary than perhaps palatable.

Not by any means the least important part of the question is the principle on which corporal punishment should be administered. There are two theories of this; two distinct modes in which it is calculated upon as acting, so as to prevent the recurrence of the offence for which it is applied. Some would have it viewed mainly as disgrace and dishonour; others, as an equitable retribution, in the shape of pain, in return for self-indulgence. Without saying that the sense of shame either can or ought to be altogether excluded, still it is certainly not that to which it will be wise in an instructor chiefly to appeal. For, in the first place, is it possible, as human nature, and especially a boy's nature, is constituted, that you can ever persuade him that idleness and inattention, that loving play better than work, though punishable, are very flagrant offences? Will not the great familiarity of a boy's own mind with these tendencies, the constant observation of them in his schoolfellows, the levity with which these faults, whether rightly or not, are generally spoken of by all but the schoolmaster, compared, we mean, with other offences—will the common feeling on these points be counteracted by anything the master can say on the subject? Besides—and this is rather more to the point—does the master himself, annoyed as he may be, conscious as he may be, that common school faults, if allowed, must be an impediment to all progress—does he really and truly consider his pupil seriously disgraced by punishment administered for what he knows to be so natural; or is he, when he professes himself to be ineffably shocked and disgusted, only acting the part of a solemn old hypocrite? Of course the punishment can only be viewed in connection with the offence by which it has been earned. Most improper may such merriment be, but has not nearly every uncle, or godfather, when he gives his five shillings, or, in the present day, his sovereign, sly jokes about idleness and its consequences, with a certain demoralizing reference to his own experience in such matters. What man of healthy mind looks back with any intensity either of shame, or anger, on these school castigations? We have often been present at the anniversary of a large public school, and have heard frequent allusions made to past corporal inflictions, but never gravely, much less with heart-burning. But suppose you could excite in a boy's mind an acute sense of degradation by the mere fact of punishment for faults not very flagrant, would you be right in so doing? Is this feeling of shame, on which you lay such stress, given you to trifle with, which you are doing if you excite it greatly, and call it into activity on any but the most important occasions? You tell a boy that the touch of the cane is degradation, being at the same time quite aware that in all probability he will have to be caned, and that more than once, for these minor matters, nay till it ceases altogether to be a novelty. Do you know what the effect of real degradation is on a high-spirited and high-minded boy? To some it is little short of ruin. Again, if a boy is to consider himself degraded when you use this class of punishments, if you would be consistent, and not play the fool with him, you should sustain towards him a kind of reserve; now this coolness between the master and the pupil, if the latter feels that he is really under a cloud, clogs actual business, checks the cheerful current of work, and damps the energies, rather than excites them. For the sake of common sense and common feeling act according to the other view of corporal punishment in all ordinary cases. Let the punishment come with the certainty and calmness of a physical result. Expend no more time or oratory on these occasions than will suffice to make your own understanding and that of your pupil meet on these simple points—that he is sent to you to be instructed; that it is your duty to make him learn whether he likes it or not; that if he will grant himself the indulgence of play when he ought to be at work, or if showing his own temper in opposition to your will, you must and will invariably give him more than an equivalent in bodily inconvenience, and that without loss of time or temper on your part. With how much calmness, and how much equity, a judicious master can punish for ordinary faults, most parents, who seldom resort to blows except when they are violently exasperated, can have little idea. Before leaving this part of the subject we would say, that of all instruments of chastisement the rod, national as it is, appears the most objectionable; particularly when it supersedes other forms of punishment, personal exposure is far more degrading than mere submission to pain, except in the case of the very young: besides, where the rod is used, its ceremonials being somewhat troublesome, long intervals are often allowed to elapse, during which habits of inattention and incorrectness are often formed which might be checked by a slight immediate punishment.

Many are the abuses of corporal chastisement, most of them too palpable to require mention here. One of the worst, however, into which some masters seem to fall almost unconsciously, is the habit of selecting two or three victims in each class who are made the scape goats of the whole community. Now, when a man finds the intellect of a pupil rather below par, it is surely unreasonable to visit his natural inertness and stupidity *more* severely than the carelessness of quicker boys, in whose case well-timed severity is far more likely to be efficacious. Yet how many instances have we known when the lively boy, who can, almost when he pleases, redeem his character and his place, has made endless mistakes of thoughtlessness with impunity, whilst neither patience nor mercy have been shown to the unhappy tardigrade. Ascham's remarks are excellent here, though certainly too universal..

"But this I will say, that even the wisest of your great beaters do as oft punish nature, as they do correct faultes. Yea, many times, the better nature is sore punished: for if one, by quicknesse of witte, take his lesson readilie, another, by hardnesse of witte, take it not so spedelie, the first is always commended, the other is commonly punished; when a wise scholemaster should rather discretlie consider the right disposition of both their natures, and not so much weigh what either of them is able to do now, as what either of them is likely to do hereafter."

He proceeds to show, that, what he calls these hard and slow wits, make often the most useful men, if not discouraged by over-severity. It is however for its downright injustice that this selection of victims is most open to censure, and the most ruinous too to a master's usefulness. A judicious teacher's desire would rather be to except from chastisement boys of slow capacity, and here lies the schoolmaster's grand difficulty, not merely as regards corporal, but as regards all punishments. He feels that to be true of the management of a school, which the great Sully asserts of the government of a kingdom—"A kingdom ought to be governed by general rules; exceptions only occasion discontent, and produce complaints." He feels it absolutely necessary that he should maintain his character for justice, and justice too of a very broad kind; that he must not make distinctions which his pupils cannot, perhaps, we should rather say will not, understand; that in this point he is scarcely at liberty to follow, in one sense, even his own judgment, but to study rather the appearances of equity, than its essence. Supposing, for instance, the lesson set to be a reasonable one, and the neglect of a class to have been general, it will not do to punish all the rest, excepting this boy for his weaker capacity, and that for his feebler constitution. However much he may lament over the necessity, it will, on the whole, be better for the master to make his treatment uniform. Those who wish their children not to be educated singly, but to enjoy the advantages of a system, must submit to the imperfections to which all systems are liable. It is for parents to judge whether their children are too dull, or too infirm, to enter into competition with other boys, and to share their punishments. We must not expect to make our modes of government; and distributions of penalty, more perfect in all respects than that moral government of rewards and punishment to which, as men, we are subject and must submit. How many of what would be commonly called "hard cases" do we see around us daily? The man of feeble body, nervous temperament, excitable passions, is shattered to pieces by slight excess, whilst his friend of more powerful frame, and stronger nerves, who has gone through in his time double the amount of dissipation, and who has reformed, after warnings, looks back from the bosom of his family on his past life, and his perished companion, and moralizing with a somewhat pitiless self-complacency exclaims, "Ah, poor fellow, he fell a victim to his vices:" thousands of instances which appear to us in the highest degree mysterious, meet our view without authorizing us to question the supreme justice, and so we fear must it always be in schools, even the best governed. Where the offence is an individual one, the teacher has, of course, the opportunity in a far greater degree of considering all circumstances, and moderating the penalty accordingly. And here it may be observed that a head master should intrust his subordinate teachers, whom we presume to be well chosen, with the power of administering correction themselves; for it certainly is not desirable, though the practice at some schools, that the Principal should be the general executioner. No one can know exactly what degree of punishment is deserved, and modify it accordingly, except the person who is familiar with the boy, or class, and the palliating or aggravating circumstances; these can rarely be fully entered into or explained to the head master; besides, as was before remarked, the prompter the punishment for most faults, the better.

All that we have said has reference to the general form of education in England. Boys *might* learn Latin from their nurses, like Montaigne; or imbibe, like the young Russians (according to Kohl) four languages at once from different domestics. He *might* adopt the free and easy manner suggested in the "Taming of the Shrew."

"The mathematics, or the metaphysics,
Fall to them as you find your stomach serves you:
No profit grows where is no pleasure ta'en;—
In brief, Sir, study what you most affect."

We might consult individual genius or fancy. "Ut sive ad rem militarem, sive ad juris scientiam, sive ad eloquentiæ studium juvenis inclinasset, *id universum* hauriret;" but this is not the style of Education which suits our nation, our age or our circumstances. Nor by it would the invaluable government of the will be gained; labour—if free, well, if not, compulsory—must have its share with pleasure in the process of education.

Obedience is to be taught, and foundations are to be laid upon the levelled will, by using for a time, and it need not be for a long time, unflinching and temperate firmness; habits of industry are, without dallying and temporising, to be formed whereby those elements of knowledge may be acquired which are often so nauseous when they need to be picked up in after-life. Other motives gradually rise to supply the place of fear. Application, now habitual, will be comparatively easy. The mind will rejoice in the progress which she has been compelled to make. Drudgery over, taste will seek and find its objects: ambition, interest, and excitements which would at an earlier stage have been insufficient, are now powerful, and all these a judicious master will enlist in his service. Now

"Consideration like an angel comes,
And whips the offending Adam out of them."

But till consideration came, it was necessary for some one in the mean time to perform its office. Had such a substitute not been found, the green withs of that Dalilah Indolence would have gradually hardened into Philistine irons, for a far greater number of men have been fascinated and seduced from mental exertion by indulged sloth, at last unconquerable, than were ever rendered averse to it by such severity as would ordinarily be met with in our schools.

The transition it is true is gradual, hence the error of those who speak of the effects of corporal punishment as if the passage were a momentary one, from the state in which the main stimulus is that of fear, to one in which it has almost ceased to exist, as if the subdued mind had no power or resources of self-recovery.

Such as we have described has been the process with many a man, now forward in the world, who has appeared at first, as a boy, idle and unsatisfactory.

Mercury caught or rather picked up a tortoise lazily wandering on the misty sides of a classic mountain, famed for its lucid and cœrulean summit, he seized the apparently purposeless creature, and after a skilful, though by no means painless operation made it musical under the stroke of the plectrum. Thenceforward it became the very joy of Phœbus, the architect of Thebes; the tamer of the pards of the forest, the charmer of the monsters of the deep, the companion of the festivals of Gods and men, sounding in the palaces of kings, and on the summit of Parnassus. To many a man the lines of Butler, written in burlesque, have been a sober verity.

> "Whipping, that's Virtue's governess,
> Tutress of arts and sciences,
> That mends the low defects of nature,
> And puts new life into dull matter,
> That lays foundations for renown,
> And all the honours of the gown."

In such cases a good Busby knows when to resign his rod without repenting of his theory. Let those Public Chartered Schools, whose privileges exempt them from the power of private dictation, (whilst they have the power of conferring pecuniary benefits which parents do not care to forego,) retain their independence in the exercise of authority, in spite of the demands of a not very reasonable public; who would have a mastery of subjects double in number what was required in former days, with an equal expenditure of time, with, in the instructors, twice the patience, and less than half the privilege of correction.

I. F. B.

ON METHODS OF TEACHING.

In a former paper on this subject, we endeavoured to show that the value of mere methods of teaching has been very much overrated, and, in exemplification of this, we pointed out some of the errors into which elementary teachers have been led by a too rigid adherence to the particular methods introduced into this country by the Committee of Council on Education. We found, namely, that an almost indiscriminate use has been made of these methods, without regard to the peculiarities of each case, and that there is a tendency on the part of teachers to rely upon them for much that can only be effected by the immediate action of their own minds upon those of their scholars. Before proceeding further, we would only remark, that this tendency is, to a considerable extent, the unavoidable result of the recent movement in favour of popular education; for, in the zeal awakened by the success of the new methods in particular instances, and the general ardour inspired by the whole movement, it was only natural, that many who had not sufficiently studied the principles of teaching, should be led to attach undue importance to the mere outward forms, without being able to embody the spirit, of the methods. A similar tendency was produced by the first great educational movement in this country, and was notoriously carried to an extent which proved ruinous to the system then introduced. It was regarded by a distinguished writer, himself once a schoolmaster, as one of the evidences of a mechanical age, and described by him in the following strong language: "Not the external and physical alone is now managed by machinery, but the internal and spiritual also. Here too nothing follows its spontaneous course, nothing is to be accomplished by old, natural methods. Everything has its cunningly devised implements, its pre-established apparatus; it is not done by hand, but by machinery. Thus we have machines for Education: Lancastrian machines; Hamiltonian machines; monitors, maps, and emblems. Instruction, that mysterious communing of Wisdom with Ignorance, is no longer an indefinable tentative process, requiring a study of individual aptitudes, and a perpetual variation of means and methods, to attain the same end; but a secure, universal, straightforward business, to be conducted in the gross, by proper mechanism, with such intellect as comes to hand."*

In the last paper we further stated it as our opinion, that the attention of English schoolmasters has been too exclusively directed to the study of method, to the neglect of more important matters. We now propose to take up the subject here, in accordance with our engagement on that occasion.

Among those nations who have developed the science of "Pédagogie" to the greatest extent, the following are the general topics which it is considered to embrace. In the first place, it comprehends the two great divisions, Education and Instruction, these words being used in their restricted sense. Education is subdivided into three parts:—

1. Physical Education;
2. Moral Education;
3. Religious Education;

and Instruction into two parts:—

1. Didactics, or the principles of teaching.
2. Method.

We have here, then, the outlines of a course of study comprising an inquiry into the principles by which the education and instruction, or, as Mr. Stow would say, the training and teaching of children, ought to be regulated, in all the successive stages of their physical, mental, moral, and religious development. Now, we cannot avoid being struck, in considering the wide range of the science, by the small amount of progress which English schoolmasters have hitherto made in the study of it, and the almost total neglect of it in our training schools as a subject of special courses of lectures.† The whole of the first great division of the science, which is of paramount importance, has received very little systematic consideration; and, of the second great division, the only part to which much attention has been given is the practical one, involving, not so much principles themselves, as particular applications of them. This is certainly in accordance with our national character, and it has been remarked, generally, that while in Germany the *science* of instruction is most deeply studied, in England the *art* is most diligently practised; but it must be obvious that, in order to become a really efficient teacher, it is absolutely necessary to combine both theoretical knowledge and practical skill. The man whose mind is chiefly occupied with the development of the principles of education, is apt to overlook the best means and methods for their practical application; while the merely practical teacher will never be able to give his pupils a really liberal and comprehensive training, because he has not those enlarged views of the objects of mental and moral culture which are acquired by study and reflection.

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* Carlyle, "Signs of the Times."

† Mr. Moseley, Her Majesty's Inspector of Training Schools, makes the following observations in his last report on these institutions:—"Nothing has more excited my surprise in the inspection of training-schools than the comparative neglect of all that belongs to the professional education of the teacher. The lectures specially directed to this object (if there be any) are generally assigned a subordinate place in the course, and intrusted to an inferior officer. The elementary school is too

The greatest schoolmaster whom the world has produced, to whom may be traced most of the enlightened views of the present day in regard to the education of the people, and the principles on which it ought to be conducted, is well known to have been comparatively unsuccessful as a practical instructor of youth. "The rapid progress of his (Pestalozzi's) ideas," says the Rev. M. C. Woodbridge, "rarely allowed him to execute his own plans, and according to his system too much time was employed in the profound development of principles to admit of much attention to their practical application." The failure of his institution at Yverdun was in great measure owing to this want of tact, as a teacher, combined, as it generally and almost necessarily will be, with a similar deficiency in reference to the ordinary affairs of life. It is quite remarkable, that, even in attempting to carry out his principle, that education should be practical, drawing its means of development from the actual circumstances of life, Pestalozzi gave an illustration of this defect in his character: he positively went to the expense of providing a series of engravings representing familiar objects, and had lessons given upon them in his school; nor did he perceive his error till his attention was directed to it by the following experience on the part of one of his disciples, to whom he had intrusted this instruction. "One day, the Master having presented to his class the engraving of a ladder, a lively little boy exclaimed, 'But there is a real ladder in the court-yard: why not talk about it rather than the picture!' 'The engraving is here,' said the master, 'and it is more convenient to talk about what is before your eyes than to go into the court-yard to talk about the other.' The boy's observation, thus eluded, was for that time disregarded. Soon after, the engraving of a window formed the subject of examination: 'But why,' exclaimed the little objector, 'why talk of this picture of a window, when there is a real window in the room, and there is no need to go into the court-yard for it?' Again the remark was silenced; but in the evening both circumstances were mentioned to Pestalozzi. 'The boy is right,' said he, 'the reality

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much left out of the view of the training-school. There is, indeed, attached to each a so-called model school, but, comparatively, little of the interest of the institution centres in it. To this remark, as well as to many others, bearing unfavourably on the present state of training-schools, I must make an exception in favour of that at Cheltenham."—*Minutes of Committee of Council on Education*, 1850–1, vol. i. p. 140.

is better than the counterfeit: put away the engravings, and let the class be instructed by means of real objects.'"*

It is, of course, impossible to find an instance of a merely practical teacher among celebrated members of the profession; the influence of such a man is necessarily confined to his own school, and his immediate acquaintance; he does not enter the general field of speculative inquiry, or, at most, advances but a very short distance beyond its confines. We need not go far, however, for a type of this class; they are still very numerous among us, in spite of the advance we have lately made in the adoption of sound principles of education. The old country schoolmaster, or, as he is called in the north of England, the dominie, is a fair specimen of a merely practical teacher. He is a man who goes about his work with a precision and straightforward energy that makes him despise the "new masters," who are generally less decided and dogmatic in their mode of procedure. He will impart to his scholars, by individual instruction, a large amount of information on a variety of subjects: he will turn out excellent penmen, good practical or rule accountants, first-rate spellers, and tolerable readers, as far as the pronunciation of the words goes; and, if he has a taste for music, he will even teach a few to sing by ear both sacred and profane airs, while he accompanies them on his flute or violin. He has, it is true, a theory upon which he proceeds, and in defence of which he will talk down the stoutest opponent; but, unfortunately, it consists of just one simple and comparatively insignificant principle of mere instruction: it is, to form the mind by exercising the memory. He has no idea of training the mind as an instrument for dealing with knowledge; he rather imagines his office to consist in storing it with such information as, in his own, or the parents' view, may be requisite to carry his pupils well through life; and when he has thus filled their knapsacks with the appropriate commodities, in the quantities proper to each, he starts them on their journey, with fond regret, but with evident satisfaction at the manner in which he has equipped them.

We have described extreme cases of the practical and the theoretical teacher, in order that we might exhibit in a strong light the general tendency of each. We do not of course intend them as types of the German and English schoolmasters respectively. At the time of Pestalozzi, they might indeed have stood for such; but since then the German schoolmasters have made as great progress in practical skill, as the English have in theoretical knowledge. Still it is necessary to look upon these characters as the starting points from which the schoolmasters of both nations have set out, in order that we may estimate correctly the amount of their respective progress towards the true standard of a teacher. It is only with those of our own country, however, that we have now to do.

The advance that has been made by the present body of English teachers, as compared with the old country schoolmasters, whom they have been gradually replacing during the last ten years, has been confined, in the majority of cases, to increased attainments in the ordinary branches of knowledge, and an acquaintance with the improved methods of imparting elementary instruction. Now, in this the practical tendency is still manifest, although it has been modified by the addition of one element of theory: there is the same end to be accomplished, but the teacher has now a greater stock of materials at his command, and more skill in the employment of them. We are deeply sensible of the importance of this amount of progress, and we yield to none in the desire to acknowledge the obligations which we owe to our training schools and to the Committee of Council for promoting it; but, at the same time, it is only one step in the right direction, and teachers must not be content to stop here, as if nothing more remained to be done. The communication of knowledge is by no means the highest aim of education. It is certainly of great importance as the framework for mental and even for moral culture; but the culture itself is still the chief object, and the instruction only the means of its attainment. Let us inquire a little more closely into this. It is a question of immeasurable importance, as it involves no less a consideration than that of man's destiny; for culture again is but the means for the accomplishment of this still higher end.

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* Dr. Mayo, preface to "Lessons on Objects."

What then is man's destiny? How many there are, even among good men, who have no distinct idea as to the purpose for which they are placed here, no definite object towards which all their thoughts and actions are directed! The majority of men consider it the principal object of their life, to amass enough money to place their families in a position of independence; and they either wear out their existence in an unavailing struggle against fortune, or else they are successful, and settle down for the rest of their days without any object at all. Nor is this by any means an unworthy endeavour; on the contrary, there is something almost sacred in the anxiety of a father to secure his family against one of the greatest of earthly calamities, that of sinking into indigence, when he, their only support, shall be bowed down by the weight of years, or when, it may be, he is prematurely removed from them by the inscrutable decree of an all-wise Providence. Woman, again, almost universally regards it as the main object of her existence to prepare her children for the performance of their duties in life, and to train them in the practice of Christian virtues. Truly, this also is a high and holy duty; and nothing adds more grace to the maternal character than the spirit of self-denial in which it is mostly accomplished. Both of these duties, however, have reference to others, rather than to ourselves; and they depend entirely upon our relation to one another: they form, therefore, only a partial, and, to some extent, a contingent object of our existence. Apart from all the obligations which a man's relation to his fellow men imposes upon him, there must be some divine purpose which he is required to fulfil, and from which he may not swerve to the right or to the left, from the first moment of his consciousness, to the last hour of his life. It is not sufficient to answer, that we were created for God's pleasure, and to the showing forth of His glory, for we know, that whether we will or not, whether we obey or disobey His laws, we must contribute to the universal song of praise which rises from His created works. Independently of this general object of their creation, each of His works has a special task to perform, and man's must be commensurate with the high position which his Maker has assigned him. What this task is, revelation and our own spiritual nature distinctly declare; it is, to bring his will into complete harmony with the will of God, and the dictates of his own reason. Towards this perfection all our efforts must be directed; everything we do, as rational and spiritual beings, which does not tend thither, is done in vain.

The means of its attainment are to be found in the harmonious cultivation of all the faculties with which the Creator has endowed us; and this cultivation must therefore be regarded as the great business of education.

We do not wish to undervalue the importance of storing the mind with useful and practical knowledge, that shall be available to the individual in after life, in preference to such abstract knowledge as can only serve the one purpose of exercising his faculties in its acquirement. Here, in fact, the practical and the theoretical must go hand in hand. But even regarding his education merely as a preparation for active life, we are convinced that it would be far better for the pupil to receive a good training, without an atom of available learning, than to have his mind surfeited with general information, which he has not the power to digest. The possessor of such information would probably never become capable of thinking for himself, but would only be fit for a mere instrument in the hands of others. By this general cultivation of our faculties, also, we shall most worthily magnify the Creator, not now as unconscious witnesses to His glory, but as voluntary agents in showing it forth; for we yield him honour when we perfect His works, and most abundant honour when we perfect the greatest of His works, the human soul, in which He most fully manifests Himself.

The teacher must not, however, rest satisfied with these general ideas of the duties of his office: he must ascertain the particular laws of development in relation to each set of faculties; and, for this purpose, he must study at least the elements of physiology, and of mental and moral philosophy, as bearing on education. The small progress which English schoolmasters have made in this study is doubtless attributable, in great measure, to the absence of any good work in our language upon the science of education;* but this does not excuse an almost total ignorance of the subject. Every one must make it his business to gain some acquaintance with it, by reflection upon his experience in his school, and with the aid of such treatises as he may be able to procure. He will then no longer run the risk of misapplying methods, because he will know the general principles of teaching upon which they are based; but on the contrary, he will be enabled to employ them efficiently under all circumstances, and thus to avail himself of their advantages to the fullest extent. He will then understand that they are only valuable in so far as they apply these general principles; that their object is not simply to diminish the labour of learning for the children, but more especially to guide the teacher in developing their minds. Viewed in this light, methods are evidently of very high importance; but, as at present studied and practised by many schoolmasters, namely, as mere plans of teaching particular subjects, they lose more than half their value.

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* We think it important to call attention to the recommendation of Professor Moseley contained in the following passage of the report from which we have already quoted:—"Elementary teaching having been much longer studied as an art in some foreign countries than here—and practised in that higher sense with great success—it is to be regretted that we possess no information generally accessible as to the principles of that art developed in their works on education, and sanctioned by the experience of their schools. A study of the phenomena of the mind and of its development cannot but be fruitful in results of value and importance to the educator. No such study has, so far as I am aware, been undertaken in England with reference to that which belongs to elementary instruction, or in any practical sense. That remarkable neglect of what belongs to the professional education of the teacher, to which I have so often borne testimony in my reports to your Lordships on the training-schools, is probably due, in a great measure, to this cause. Teaching has not yet risen to the dignity of a science among us. I know of no greater boon which could be conferred on elementary education, than to make known *here* what has been done in that science in Germany." Even a translation of one of the best German works on the subject would be of great utility to English teachers.

ON THE RELATION WHICH OUGHT TO SUBSIST BETWEEN THE TEACHER AND HIS PUPILS.

There are to be found men in the world, who though they reside in the immediate neighbourhood of each other, yet live in total estrangement. They look upon one another with coolness and perhaps dislike, probably for no other reason than that they do not know each other. Such, it is to be feared, is sometimes the case with teachers and their pupils, and we need hardly say that it is a most undesirable condition, leading, where it exists, to many evil consequences. The teacher is separated from his pupils, as it were, by a gulf: there is between them no cordial intercourse, no unconstrained interchange of thought, no harmony of feeling. A teacher who is thus content to remain ignorant of his pupils, cannot recognise his true position, nor enter upon his duties in a right spirit, and he is apt to look upon his young charges as so many restless and malevolent creatures, bent upon teasing and annoying him. He thinks it his bounden duty to wage incessant warfare against this spirit of opposition to his authority, and is always on the alert to inflict punishment when any occasion presents itself, as if this were the only means of forming his pupils' dispositions and characters. Yet it is a common and a natural result of such a system, that the more severely the teacher punishes, the more hardened and rebellious the children become.

Another evil arising from the teacher's false estimate of his position, and his ignorance of the dispositions of his pupils, is that it blinds him to whatever is good and praiseworthy in their conduct and characters. Hence it comes that the bestowal of praise is a thing he never has recourse to, and perhaps never thinks of as a means of encouraging his pupils. The good effects resulting from the bestowal of praise where it is really due, have been so graphically and happily depicted by Captain Basil Hall,* that we feel we cannot better illustrate our meaning than by quoting his truthful and touching little sketch of the two captains.

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* "Fragments of Voyages and Travels," first series, page 165.

"I shall merely mention," says he, "one important trait of character by which the captains were contradistinguished from each other. Whenever one of these commanding officers came on board the ship, after an absence of a day or two, and likewise when he made his periodical round of the decks after breakfast, his constant habit was to cast his eye about him, in order to discover what was wrong—to detect the smallest thing that was out of its place—in a word, to find as many grounds for censure as possible. This constituted, in his opinion, the best preventive to neglect, on the part of those under his command: and he acted in this crusty way on principle.

"The attention of the other officer, on the contrary, appeared to be directed chiefly to those points of which he could approve. For instance, he would stop as he went along, from time to time, and say to the first lieutenant, 'Now these ropes are very nicely arranged; this mode of stowing the men's bags and mess-kids is just as I wish to see.' While the officer first described would not only pass by those well-arranged things which had cost hours of labour to put in order, quite unnoticed, but seemed never to be easy till his eye had caught hold of some casual omission, affording an opening for disapprobation. The approving captain would remark to the first lieutenant, as he walked along, 'How white and clean you have got the decks to-day! I think you must have been at them all the morning, to have them into such order.'

"The fault-finder in similar circumstances, but eager to blame, would say, even if the decks were as white and clean as drifted snow, 'I wish to heaven, sir, you would teach these sweepers to clear away that bundle of shakings!' pointing to a bit of rope-yarn, not half an inch long, left under the truck of a gun. In short, it seemed, as if nothing was more vexatious to one of these officers than to discover things so correct as to afford him no good opportunity of finding fault; while to the other the necessity of censuring really appeared a punishment to himself. Under the one, accordingly, we all worked with cheerfulness, from a conviction that nothing we did in a proper way would miss approbation. But our duty under the other being performed in fear, seldom went on with much spirit. We had no personal satisfaction in doing things correctly, from the certainty of getting no commendation. The great chance also of being censured, even in those cases where we had laboured most industriously to merit approbation, broke the spirit of all generous exertion, and by teaching us to anticipate blame, as a matter of course, defeated the very purpose of punishment when it fell upon us. The case being quite hopeless, the chastisement seldom conduced either to the amendment of the offender, or the prevention of offences. But what seemed the oddest thing of all was that these men were both as kind-hearted, or, if there were any difference, the fault-finder was the better-natured, and, in matters not professional, the more indulgent of the two. Yet, as it then appeared and still appears to me nothing could be more completely erroneous than the snarling method of the one, or more decidedly calculated to do good than the approving style of the other." This picture needs no comment.

Where a right relation exists between the teacher and his pupils, time passes happily both with him and with them. They show a desire to do whatever they think will be pleasing to him. His approving smile they look upon as a reward, and carefully avoid whatever they know will call forth his censure. Thus, while the teacher sees their minds developed under his intellectual training, he has the additional gratification of seeing the qualities of their hearts, their feelings and affections unfold themselves in a right direction. He also enjoys the friendship and respect of his former pupils who have arrived at manhood, and are reaping the fruits of the labours and pains he bestowed upon them, and the more they have profited by his labours, the more grateful they will be.

ON CATECHETICAL INSTRUCTION.

No. II.

The advantages which, in a former article, we ascribed to the catechetical method of instruction, belong, of course, to the method only when rightly understood and skilfully practised. It would be an easy task, but an invidious one, to point to published specimens of catechetical instruction, consisting of a mere series of sentences, in the form of question and answer, which are by no means entitled to be regarded as veritable specimens of the true catechetical method. Such books may be drawn up in the catechetical form, but certainly not in its *true spirit*. One reason why the catechetical plan of teaching has been less appreciated than it really deserves to be, is, that discredit has been thrown upon it by the puerile and jejune specimens which have been given to the public. To this we may add the no less crude attempts made by teachers who have neither the necessary fulness of knowledge, nor a sound practical acquaintance with the essential principles and details of the method.

We are far from approving of any attempt to reduce the business of teaching to a mere code of dry rules. We deprecate, in fact, any such attempt, and believe that it cannot fail to prove abortive—in so far at least, as the highest objects of education are concerned. From the *shibboleth* of *system*, in this sense, the best interests of popular education have, on all sides, seriously suffered. The spirit which prompted the question, " Can any good thing come out of Galilee ? " has been too much abroad and too much indulged in by those who have happened to think differently on the great question of popular education ; a question, nevertheless, respecting which a variety of opinion (right principles being taken for granted) is perhaps more to be desired than dreaded. That this spirit has lost much of its virulence and is now fast disappearing, may be regarded as one of the most propitious signs of the times, visible in our educational horizon.

While, however, we would determinately set our face against the notion that the teacher should be fettered by any external cramping or strait-lacing, under the name of system, such as we have alluded to, we are ready, on the other hand, to acknowledge that it would, we think, be equally vain to expect success in the business of education, where the teacher is ignorant of the principles of his art or science (call it which you will) as it would be to expect that success should attend the efforts of the professor of any other of the arts or sciences, who was totally unacquainted with the fundamental principles and details of his profession. This holds good especially with the catechetical method. One who has not reflected on, and studied the principles and details belonging to the method, cannot expect to practise it successfully. This method admits, and indeed requires, perhaps more than any other, hints, rules, and instructions for its right employment.

If the method does not require study and helps of this kind, how comes it that so comparatively few good catechists are to be met with, and that glaring mistakes, short-comings and failures, such as the following, are so often witnessed in the conducting of the catechetical exercise. Long preachments intervening between the questions, instead of the lesson being closely concatenated, and the links, the steps in the process, separated, or rather united, at most, by a few explanatory or supplementary words from the teacher.—Random questioning in which the catechist himself seems scarcely to know what he is aiming at, and from his aimless exercise effects of course nothing definite or worth the time bestowed upon it.—Questions obscurely put; clothed in language beyond the pupil's comprehension, and encumbered by a number of unnecessary words, a multitude of which, in this case, never fails to darken counsel.—Questions put which do not require any intellectual effort on the part of the pupils, and only admit of monosyllabic answers, such as "yes" and "no."—No notice taken of wrong answers, to show wherein they are wrong; nor the inaccuracies, in language or fact, of half-right ones pointed out.—No attempt made to arrest the attention and keep the minds of all the pupils simultaneously at work, the answers being received from a few of the older and more advanced pupils.—Telling the first word, or part of the first word of the answer, a practice which destroys entirely the intellectual character of the exercise, and gives rise to senseless guessing.—A monotony of voice.—No attempt to give sufficient variety to the form of the questions.—Questions awkwardly put, and made to end too frequently in the word *what*, &c., &c.

Now it is sufficiently obvious that the young teacher who commits these and similar faults is liable to go on doing so, unless his attention is directed to them, or he should have an opportunity of referring to some standard in which they are pointed out, and the subject minutely treated of. Where his shortcomings are not thus brought under his notice, he can hardly fail to acquire, and confirm himself in, faulty habits of teaching, which, as in the case of most other habits, are much more easily contracted than got rid of. Besides this, the teacher, who has not studied his method, and is conscious that he is not familiar with its details, cannot be expected to possess self-confidence. He is apt to be put out by wrong answers. He is almost afraid to stop to resolve doubts, and to clear up difficulties when they arise. When thus put out, he becomes nervous, and fails to elicit from the children what they really know. He probably tells and makes them repeat his words. But this, regarded as a catechetical exercise, is a failure. Knowledge so imparted can take but a slight hold on the pupils' minds, and can contribute little to the development of their intellectual powers. On the other hand, the teacher who is familiar with the principles and rules, and experienced in the use of the method, is not put out by any answers he may receive. He knows at once how to deal with them. Perhaps, by a few additional questions based upon the faulty answers, he leads the whole of the pupils to see and correct the faults, and leads them on to the point he had in view; and, it may be, impresses it more strongly on their minds, by contrasting what is right with the wrong answers given. In short, he who is fully master of his method, and can employ it with coolness and self-possession, never passes over a point in the lesson till he has brought it clearly, definitely, and, as it were, tangibly before the minds of his pupils. This may to some appear to be a slow way of proceeding. But it is slow in appearance only, for whatever the pupils acquire in this way, they acquire perfectly —they assimilate it, and make it their own.

LESSONS ON THE RIVERS OF EUROPE.

(*Continued from page* 380.)

Rivers entering the Atlantic.

19. **The Seine** rises on the western slope of the mountains of Côte-d'Or, in France, flows north, then west by south; it afterwards takes a general direction of west-north-west, and empties itself into the English Channel. This river is very winding; so much so, that although in a direct line it does not measure more than 260 miles, yet its whole length is estimated at 480 miles. The lower part of its course is full of shoals and shifting sand-banks, which render the navigation intricate and dangerous. Vessels of 300 tons can ascend as far as Rouen, whilst those of smaller size can go as high up as Troyes, a distance of 370 miles. The basin of the Seine is estimated at 30,000 square miles. Among its tributaries may be mentioned the *Aube*, the *Yonne*, and the *Oise*.

Troyes, on the left bank of the Seine, is the chief town of the department of l'Aube. Although from its position it is of considerable importance, it is badly built, most of the houses being made of wood. It has manufactures of cotton, woollen cloths, and hosiery; it also possesses paper mills and bleaching establishments. Here took place the marriage between Catherine of France and Henry V. of England; and, in 1429, the place was taken from the English by the French, under Joan of Arc. Population, 29,000.

Paris, the capital of France, is situated on both banks of the Seine, including an island which was the original site of the city. In its greatest breadth it measures about three miles and a half, whilst it extends along the banks of the river nearly five miles. It is entirely surrounded by walls, which are entered by fifty-eight gates. At each of these gates or *barrières* is a toll-house for the collection of dues on all goods entering the capital.

Paris ranks as the second city of Europe in reference to population; but it stands unrivalled in the number, the beauty, and the magnificence of its public buildings, its museums; its libraries, its picture galleries, its gardens or parks, and its numerous places of amusement. The streets are, however—except where recent improvements have taken place—narrow, badly paved and lighted; whilst, internally, the houses are inferior to those in England in point of comfort and conveniences.

Among its buildings and public institutions may be mentioned the following:—

The Church of Nôtre-Dame, a noble Gothic structure, ranking first, both as respects grandeur and antiquity, among the religious edifices.

The Louvre, containing a most extensive and valuable collection of pictures and statues.

The Museum of Natural History, the first of the kind, not only in Europe but in the world.

The National Library, the most extensive in the world, containing 80,000 MSS., and more than 800,000 books and pamphlets, besides medals, engravings, and maps or plans.

The Palais de l'Elysèe National, containing some magnificent apartments, now occupied by Louis Napoleon, the President of the Republic.

Many branches of industry are conducted in Paris on a very large scale. We may mention as the principal objects of industry—furniture, bronzes, jewellery, watches, toys, mathematical and musical instruments, shawls, gloves, carpets, tapestry, &c.

Paris has communication by means of canals, the Seine and its tributaries, with the north of France, with Lyons and the Rhone, with the Loire, and with the Rhine. It is also the terminus of several railways, which connect it not only with the principal towns in France, but with those in Belgium, Prussia, and several German States. Population, 1,250,000.

Rouen, on the right bank of the Seine, 75 miles from its mouth, the ancient capital of Normandy, and now the chief town of the department of the Lower Seine. The city is ill-built; the streets are narrow, crooked, and dirty; but it possesses some buildings, not only of great historical interest, but of much splendour and beauty. The most important of these are the cathedral of Nôtre-Dame and the abbey church of St. Ouen. The former contains a vast number of monuments, including those of Rollo and William Longsword. It also formerly possessed the tombs of Henry, the brother of Richard I.; the great Talbot;* and one in which was placed the heart of the Lion King himself; all of which were however destroyed.

Rouen is the grand seat of the cotton manufacture in France; it is, therefore, sometimes termed the French Manchester. Among its other objects of manufacture may be mentioned preserved meats and confectionery, glue, dyes, chemical products, pottery, refining of sugar, woollen cloth, flannel, blankets, &c.

It is admirably situated for commerce, and has a considerable import and export trade. By means of railways it communicates with Paris, Havre, Dieppe, and other important places. Population, 91,000.

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* Lord John Talbot occupies a prominent place in the wars of Henry V.

This city occupies an important place in history. Rollo, a duke of of Norway, about the year 876, sailed up the Seine, took Rouen the capital of Normandy, then called Neustriæ, and compelled Charles the Simple, king of France, to give him the sovereignty of the whole province. It was the residence of the dukes of Normandy till William the Conquerer ascended the throne of England. This too was the scene of the Conqueror's death, and in one of the churches in the neighbourhood was he buried.

Here, in 1203, Arthur of Brittany was put to death by order of his uncle, John, king of England. The city was soon after this besieged and taken by Philip Augustus, who annexed it and the whole of Normandy to the crown of France. In 1417, it was retaken by Henry V., and retained by the English for 30 years. It was during this period that the famous Joan of Arc was burned. A fountain, surmounted by a statue, marks the spot where the execution took place.

Havre (properly Le Havre de Grâce) lies on the north bank of the estuary of the Seine, and is a place of great trade. It is very strongly fortified, both on the sea and land sides; the fortifications are about three miles and a half in circuit. The harbour, which is the best on the coast, is composed of five basins and an outer port, separated by locks, and capable of holding more than 500 ships. The entrance to the harbour is guarded, on one side, by a tower 70 feet in height and 85 feet in diameter; and, on the other, by a small battery mounting six pieces of cannon. Havre is the port of Paris, almost all the articles of consumption required for the capital being imported thither. The imports consist of coffee, sugar, spices, indigo, tobacco, timber, hides, iron, cotton, &c. The principal exports are silks, lace, cotton stuffs, gloves, glass, brandy, Burgundy, Champagne and other wines. The manfactures consist of paper, ship cordage, furniture, oil, pottery, carpenters' tools, &c. There are also sugar refineries and ship-building yards. There is regular communication by steam-boats with London, Brighton, Southampton, Lisbon, Rotterdam, Hamburgh, St. Petersburgh, Rouen, Bayonne, &c.; there are also packet-ships to Bahia, New York, New Orleans, and Vera Cruz. Population, 21,000.

Rivers entering the North Sea or German Ocean.

20. THE SCHELDT (Fr. Escaut) rises in the north of France, near the frontier of Belgium, runs through the west of Belgium, with a general direction to the north-east as far as Antwerp. It then turns north-west, and soon afterwards enters Holland, where it divides into two arms or outlets, forming between them the vast delta of Zealand. One branch, which flows northwards into the German Ocean, is called the *East Scheldt;* the other, which passes southwards, is termed the *West Scheldt.* These two outlets enclose the islands of North Beveland, South Beveland, and Walcheren. The current of this river is slow; and in the lower parts, where the country is very flat, dykes are thrown up to prevent the lands from being inundated. The whole length of the river is 211 miles; and it can be navigated to Cambray,

in France, a distance of 195 miles. The principal tributaries are the *Scarpe*, the *Lys*, the *Haisne*, and the *Senne*.

Valenciennes, a town of France, is built on the Scheldt, which divides it into two unequal parts. It has manufactures of lace, lawn, hosiery, toys, saltpetre, pottery, &c.; there are also tanneries, distilleries, cotton-printing works, beet-root sugar factories, &c. Population, 22,000.

This was the birth-place of Froissart, the famous chronicler of chivalry, and of Watteau, a celebrated painter.

Mons, on the Trouille, a tributary of the Scheldt, is the capital of Hainault, one of the provinces of Belgium. This place is very strongly fortified. Formerly it had a flourishing trade in lace, now much decayed. The chief wealth of the city arises from the numerous coal-mines which are in the neighbourhood: there are also quarries of slate, of building stone, and of black marble with white veins or streaks, which is sent in large quantities to Paris. Population, 30,000.

Oudenard, on the Scheldt, in the province of East Flanders, is in general a well-built town, and a place of considerable trade. It is the centre of a district in which the linen manufacture is carried on, and the market in which its products are sold. In the vicinity of this place, the allies, under Marlborough and Prince Eugene, gained a signal victory over the French, on the 11th July, 1708. Population, 6000.

Ghent, the capital of East Flanders, stands at the confluence of the Scheldt and Lys. It is so intersected by canals as to form 26 islands, connected with each other by 80 bridges. It is a well-built city, and is surrounded by walls which are entered by seven gates. Among its buildings may be mentioned the cathedral, which contains some fine paintings, among which is Vandyck's famous picture of "The Crucifixion." This is one of the principal seats of manufacturing industry in Belgium, chiefly cotton. More than 19,000 persons are employed in spinning, weaving, bleaching, and printing this material. There are also manufactures of lace, woollen cloths, pins, paper, &c. It communicates with Ostend by a canal passing through Bruges, and with the Western Scheldt by another terminating at Terneuse. This was the birth-place of John Duke of Lancaster, generally called John of Gaunt. Population, 97,000.

SKETCH OF A BIBLE LESSON.

THE INSTITUTION OF THE PASSOVER. EXODUS xii. 1—12.

HEADS OF THE LESSON.

1. Explanation of the principal words and phrases.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

I.

Congregation—household—without blemish—assembly sodden—purtenance thereof—token.

Congregation,* all the people of Israel.

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* Ask the children to give the meaning of the words; if they cannot, then the teacher must give them.

Household, the number of people in a house; a family.
Without blemish, without spot or stain; whole, sound.
Assembly, the people taken together.
Sodden, boiled.
Purtenance thereof, the heart, lungs, liver, &c. of the lamb.
Token, a mark or sign.

II.*

(*a*) God's command in reference to the year—(*b*) the gathering of the people—(*c*) the lamb for sacrifice—(*d*) the sprinkling of the blood—(*e*) the eating of the paschal lamb.

(*a*) Moses and Aaron, you will remember, were sent by God to bring his people, the children of Israel, out of the land of Egypt. God had already done many wonders by the hands of his servants; but Pharaoh, the king of Egypt, would not allow the Israelites to depart. God was now about to bring them out with a strong hand and a mighty arm; the promise made to Abraham was going to be fulfilled; and to keep this event in everlasting remembrance, God ordered them to make this month the beginning of months, that is, the first month in the year. It was not only to be the first in order, but the highest in their estimation. Formerly it had been the seventh month of their year, but it was to be so no longer.†

(*b*) Moses, we learn from the 10th chapter, was ordered out of the presence of the Egyptian king, with this threat, "Take heed to thyself, see my face no more; for in that day thou seest my face thou shalt die." He seems then to have gone to the land of Goshen to prepare the children of Israel for their departure, which was now close at hand. He gathers the people together; he tells them what the Lord Jehovah commanded them to do. They were to take a lamb or a kid, offer it in sacrifice, and then eat it. But if the lamb was too much for one family, then two families were to unite in order to partake of the lamb. They seem to have at once obeyed the command of God; for we read, verse 27, "The people bowed the head and worshipped."

(*c*) They depart to put in execution the order; they collect their flocks; they carefully look over them to find a lamb such as was required. It must be young, a male of the first year—one perfect in form, beautiful in appearance, sound in every part, "without blemish and without spot." It was to be a *male*, as being more excellent than a *female*, and less than one year old, because a young lamb is noted for its simplicity and harmlessness.

The lamb or the kid is chosen; it is shut up from the tenth until the fourteenth day of the month. This was done to see whether it was perfectly sound and good; for if any one was lame or injured, it could not be eaten.

(*d*) The evening of the fourteenth day has come. You may perceive an unusual bustle in the tents of Israel; the perfect lambs are brought forth, and the whole assembly of the congregation, the heads of houses according to their number, put to death the lamb,—a lamb for a house, as the Lord their God commanded them.

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* The second part is to be given in the form of a lecture. Questions, however, should occasionally be proposed to test the attention of the pupils.

† Question before proceeding further. The same remark applies to all the other headings.

The blood, as it flowed, was collected in basins; a bunch of hyssop was dipped in each, and then the blood was sprinkled on the two side posts, and upon the top beam of the door posts of the houses in which the lamb was to be eaten. This was done as a mark of safety; for on that night the Angel of Death was to be busy in the land of Egypt. Wherever the mark was placed, that house was safe. But where there was no sign, into that home did the Destroying Angel enter, and put to death the first-born.*

As soon as they had sprinkled the blood on the lintel or top beam and the two side posts, they were commanded to go into their houses or tents, to shut their doors, and not stir out until the morning.

(*e*) Each one has carefully shut his door; he has no fear; the sprinkled blood will secure him from harm; he collects his children around him, and prepares the lamb that is to be eaten.

It was not to be cut in pieces; it was not to be boiled nor sodden at all with water; it was not to be eaten raw; but it was to be roasted with fire, entire—"his head with his legs, and with the purtenance thereof." That is, the head and legs were not to be separated, nor were the heart, the kidneys, the lungs, and the liver to be removed. Neither was a bone to be broken; and whatever they were unable to eat was not to be kept, butburned with fire. The flesh of the lamb was not to be eaten alone, but with bitter herbs and unleavened bread.

Each one was to have his loose flowing garments girded on his loins, his sandals on his feet, and his staff in his hand, for at a moment's notice were they to be ready to start, to leave their house of bondage for that good land which God had promised to Abraham and his seed for an everlasting inheritance.

III.

1. The Paschal† Lamb was a type of Christ. "Christ our Passover is sacrificed for us" (1 Cor. v. 7).

2. It was to be a lamb; and Christ is the Lamb of God (John, i. 29).

3. It was to be without blemish; and Christ is called a "Lamb without blemish and without spot" (1 Pet. i. 19). "Who did no sin, neither was guile found in his mouth" (1 Pet. ii. 22).

4. It was killed in the evening; and our Blessed Lord died soon after the ninth hour, after our three in the afternoon, the time of evening sacrifice (Matt. xxvii. 46, 50).

5. The sprinkled blood saved the Israelites from the destroying angel; and the blood of Christ is the sole means of deliverance from the wrath to come. "The blood of Jesus Christ his Son cleanseth us from all sin" (1 John, i. 7). "In whom we have redemption through his blood, even the forgiveness of sins," &c. (Col. i. 14: see also Eph. i. 7; 1 Pet. i. 18, 19).

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* Here try to draw from the children the name "Passover," and why so called.

† Explain the meaning of "Paschal" and "Type."

"But Christ, the heavenly Lamb,
Takes all our sins away;" &c.

6. The lamb was to be roasted with fire; this denoted the sufferings of Christ, from the fire of God's wrath.

7. It was to be eaten with unleavened bread and bitter herbs.

(*a*) The bitter herbs denoted the severe and bitter bondage of the Israelites in Egypt; but they also show the necessity of penitence for sin, and shadow forth the afflictions and trials which the Christian must undergo in his journey to the heavenly Canaan.

(*b*) The unleavened bread shows that we cannot partake of the mercies of God, while we cherish in our hearts the leaven of malice and wickedness (1 Cor. v. 7, 8).

"Let every one that nameth the name of Christ depart from iniquity" (2 Tim. ii. 19).

8. It was to be eaten with their loins girded, their shoes on their feet, and their staves in their hand. These had reference to the haste with which they left the land of Egypt; but they also speak to us; they tell us that "Here we have no continuing city, but we seek one to come" (Heb. xiii. 14). For "now they desire a better country, that is, an heavenly" (Heb. xi. 16).

9. Not a bone of the lamb was to be broken (v. 46). This too refers to Christ; for in speaking of his death, St. John says, "For these things were done, that the scripture should be fulfilled, A bone of him shall not be broken" (John, xix. 36).

W. M'L.

ON SUNDAY SCHOOLS.

In our September Journal we ventured on some remarks on the subject of Sunday schools, which we felt at the time might seem to many uncalled-for, and which were liable to be misinterpreted. The responsibility was not small: still we thought ourselves justified in calling attention to the subject. Great, then, was our relief to find afterwards that thoughts similar in the main to our own had also occurred to the author of "Friends in Council." If our readers will call to mind in what terms we have lately alluded to this able writer, they will not be surprised that we gladly shelter ourselves behind his sevenfold shield. On the present occasion, therefore, they shall hear him. It is necessary to premise that the work above mentioned consists of Essays put into the mouth of a Mr. Milverton, and of Conversations between the Essayist and two friends on matters suggested by the Essay. One of these friends is Mr. Durnsford, an elderly clergyman; and the other, Mr. Ellesmere, is a barrister, who, being of a lively temperament, sometimes expresses himself in stronger language than his friends admire or ourselves would use. At one of the meetings of the Friends, a part of their conversation runs thus:—

"*Milverton.* But look now: it is well to say 'It is natural and beautiful that the young should ask, and the old should teach;' but then the old should be capable of teaching, which is not the case we have to deal with. Institutions are often only to meet individual failings. Let there be more instructed elders, and the 'dead-weight' of Sunday schools would be less needed. I think the result of our thoughts would be, that there should be as much life, joy, and nature put into teaching as can be; but I, for one,am not prepared to say that the most mechanical process is not better than none.

"*Ellesmere.* Well, you have now shut up the subject, according to your fashion, in a rounded sentence; and you think after that there is nothing more to be said. But I say it goes to my heart—

"*Dunsford.* What is that?

"*Ellesmere.* To my heart, to see the unmerciful quantity of instruction that little children go through on a Sunday. I suppose I am a very wicked man; but I know how wearied I should have been, at any time of my life, if so much virtuous precept and good doctrine had been poured into me.

"*Milverton.* Well, I will not fight, certainly, for anything that is to make Sunday a wearisome day for children. Indeed, what I meant by putting more joy and life into teaching was, that in such a thing as this Sunday-schooling, for instance, a judicious man, far from being anxious to get a certain quantity of routine done about it, would do with the least—would endeavour to connect it with something interesting—would, in a word, love children and not Sunday schools."

Now this extract has been made chiefly to introduce the last sentence, which contains no doubt the author's real meaning; and the tone of the whole passage is to be attended to rather than particular expressions. To the same writer, in another book, we are indebted for the following healthy and benevolent sentiments; which, if we mistake not, are well calculated to be useful, not only to those interested in Sunday schools, but to the masters and mistresses of National schools, and indeed to all concerned in the great work of education.

"Let us now consider the subject of the school-room more in detail. And the first remark I have to make is, that we should perpetually *recal to mind the nature of our own thoughts and sensations at the early periods of life at which those are whom we are trying to educate.* This will make us careful not to weary children with those things which we long to impress most upon them. The repetition of words, whatever they may contain, is often like the succession of waves in a receding tide, which makes less of an inroad at each pulsation. It is different when an idea, or state of feeling, is repeated by conduct of various kinds; that is most impressive. If a child, for instance, is brought up where there is a pervading idea of any kind, manifested as it will be in many ways, the idea is introduced again and again without weariness, and the child imbibes it unconsciously. But mere maxims embracing the idea would very likely have gained no additional influence with him from being constantly repeated; that is, at the time: for, in after years, the maxims may perhaps fasten upon his mind with a peculiar strength, simply from their having been often repeated to him at an early period of his life. But, at present, this repetition may be of immense disservice. You cannot continue to produce the same effect by words that you did on first using them; and often you go on hammering about a thing until you loosen what was fast in the first instance. It is well to keep such reflections steadily in mind as regards religious instruction for the young, and especially as regards religious services for them. *Go back to your own youth,* and recollect how little command of attention you had yourself; how volatile you were; how anxious to escape all tedium; how weary of words; how apt to dislike routine. Then see whether you make sufficient allowance for these feelings in dealing with the young; and whether it might not be possible to give them the same holy precepts, to communicate the same extent or nearly so of religious instruction, and yet to ensure their love for the times and places and circumstances of this communication? You must allow that you do a very dangerous thing indeed, when you make that wearisome which you wish to be most loved. I must confess that it has often struck me that we insist upon too much religious attendance from children of a tender age; and, considering what we know of the impatience of the human mind, I cannot but think such a system is often most prejudicial. I say these things with much hesitation, and some fear of being misunderstood; and I do not venture to enter into details, or to presume to say what should be the exact course in so difficult a question. What I wish, is to draw the attention of those engaged in instruction to a point of view which may sometimes escape them, or which they may be tempted to neglect for the sake of appearances—the household gods of this generation."

Are we over-sanguine, if we suppose that these sober reflections of a deeply reflective man may approve themselves to the generality of our readers? For ourselves, we look upon the words in italics as being, under God, among the principal foundation-stones of all—certainly of all moral or religious—training. C. P.

DICTATION HOMONYMS.

(*Continued from page* 382.)

Lesson II.

Well, it is strange that the window *pane* should give the finger *pain*. There is a sad *waste* of cloth in his *waist*-coat. How was it that you did not *fare* better at the *fair?* A vessel for *sale*, *sail* and rigging complete. I dare *not* untie the *knot*. *Here* they come,—don't you *hear?* Yes, I *heard* a noise like a *herd* of cattle on the road. He *knew* very well it was a *new* gig. He *threw* it *through* the window. I *told* the sexton, and the sexton *toll'd* the bell. Do you call that singing *bass?* well, it is *base* enough. The *plumb*-line was suspended from the *plum*-tree. Ask the *char*-woman to dust the arm-*chair*. I thought it *flew* through the window, but it appears it went up the *flue* of the chimney. His *birth*-place was the *berth* of a ship. This was once a *coal*-field which you are now sowing with *cole*-seed. Indeed it is *so;* while the men *sow* the field, their wives *sew* at home. She *ate eight* apples before breakfast. If you *meet* the butcher tell him to send the *meat* directly. If I go *by* the place, I will *buy* it for you—good-*bye*. When you put my *clothes* in the trunk again, I beg you will *close* it. Animals clothed with *fur* and *fir-trees* are found chiefly in the cold *clime* of the north. Do you think you could *climb* a tall fir-tree? It is a clever *feat* certainly for a man to jump five *feet* high. Who said the yellow *buoy* was taken from the river? Smith the fisherman's *boy* said it was removed this morning. She *ought* to have taken it for *aught* I know. The *pail* should be painted a deep green without, and a *pale* yellow within. *Whither* shall we fly when the *withering* blast comes on? He *knows* well enough that his *nose* is small, and *I* feel that my *eye* is weak. Venison, my *dear*, is the flesh of *deer*. Order in one *tun* of wine, and five *tons* of coals. He has *read* about the *Red* Sea, suppose he *reads* now about the Pyramids and the far-famed *reeds* of the Nile. He was one *day* with the Bey of Tunis, another with the *Dey* of Algiers. The man must be a *knave* himself to put such a *nave* as this in my wheel. To hear *sighs* and *groans* from a monster *grown* to such a *size*, is strange indeed. This may be a good *site* for a building, but the building contemplated would be a bad *sight* to view. I should *cite* both builders and architects to an interview. If he *sells* the house what use can be made of the *cells* in the *cellar?* This *foul* weather will try our African Guinea *fowl*. Do you *weigh* cheese in the same *way?* We get *whey* from cheese as buttermilk from butter. Travellers get but little *dessert* in the *desert*. Clouds *rain* and hunters *rein* in their steeds; but kings and queens *reign* in a very different manner. What is a solemn *rite?* Perhaps George *Wright* will answer the question. It is a Church appointment, or a divine ordinance. You are perfectly *right*. *Write* it on your slates that you may not forget.

OBSERVATION AND EXPERIMENT.

In the Exhibition there was a stone transmitted to this country a few months since, by a Canadian geologist; who, not being a naturalist, entertained no suspicion that the marks which had arrested his attention were traces of an animal. He thought them likely to have been produced by the trail of a long sea-weed. He requested our far-famed zoologist, Owen, to examine the mysterious marks, and decipher them, if he could. After much thoughtful scrutiny, that gentleman found them to be small prints, occurring in regular succession, in pairs,—extending in two parallel linear series, *with a continuous groove, midway* between them. Then he observed that one of the prints was larger than the other in each pair; and that both the larger and smaller print were short and broad, with indications of toes at their fore part; and that the intervals between each pair, of the same side, were much less than those between the right and left pairs. Hence he inferred, that the impressions in question, must have been produced by some *Animal*, that had crawled or walked along that oldest of sandy shores; that such animal had been a Quadruped, having the hind-feet larger and wider apart than the fore-feet—both fore and hind feet being very short; and that the limbs of the right and left side were wide apart: wherefore the creature must have had a short and broad trunk, supported on short limbs, with rounded and stumpy feet, capable of taking only short steps. Then as to the midway groove:—he at first suspected that it might have been produced by the trail of a *Tail*. The impression was well defined throughout, midway between the right and left limbs: shallower where the footprints indicated a steady rate of motion—(how delicately exact the observation!)—deeper where that motion had been retarded, and the animal's body had rested awhile on the sand. Hence the sagacious naturalist concluded, that this midway groove impression must have been made by some hard projecting covering of the belly—such as would be made by the breast-plate of a Tortoise. The broad trunk; the short steps; the stumpy feet hardly capable of carrying the trunk clear of the ground,—all this deducible solely from these faint footprints—seemed to bespeak the Tortoise. Experiment succeeded Observation. Owen betook himself to Lord Bacon's realized Atlantis, the Zoological Garden in the Regent's Park, and caused the living Reptiles there to crawl over soils carefully prepared, so as to receive and retain distinctly the traces of their transit. The Tortoise was found to have left impressions almost identical, or very closely resembling, those preserved in the ancient rock: which had been ascertained to belong to the first-formed class of rocks, deposited from the sea. Prior to the discover of this Stone, geologists had not obtained evidence of the existence of any but the lowest organised plants and animals, such as zoophytes and marine mollusca, in these rocks. This stone may therefore be regarded as an exponent of indefinitely remote antiquity, referring high organization to a period infinitely beyond all p evious supposition, or even imagination. The traces of the showers which may have beaten on the Tortoise, were sagaciously detected by an eminent living geologist, and deciphered from impressions made by the rain-drops falling on the soft sand; and the direction of the wind then blowing, by the unequal depth of the rain-pits, and the unequal height of its little circular wall, as the shower struck, obliquely, the ripple-ruffled surface. It is only on a *tidal* shore that such impressions can be received and retained: received during the ebb, and covered by fresh layers of fine sand at the flood. The traces of the ancient showers and winds, however, are not seen on the specimen deposited in the Crystal Palace, but on others, now in London.—*Note from the Lily and the Bee, by Samuel Warren.*

LOSSES BY PHONETIC SPELLING.

* * * LET me observe by the way, and as something not remote from our subject, but, on the contrary, directly bearing upon it, that I can conceive no method of so effectually defacing our English tongue, nothing that would go so far to empty it, practically at least and for us, of all the hoarded wit, wisdom, imagination, and history which it contains, as the introduction of the scheme of so-called "phonetic spelling," which some have lately been advocating among us; the principle of which system is that all words should be spelt according as they are sounded, that the writing should be, in every case, subordinated to the speaking. The gains of such a change would be insignificantly small, while the losses would be enormously great. The gains would be the saving of a certain amount of labour in the learning to spell; which amount of labour, however, is absurdly exaggerated by the upholders of the scheme. This labour, whatever it is, would be in great part saved, as the pronunciation would at once put in possession of the spelling; if, indeed, spelling or orthography could then be said to exist. But even this insignificant gain would not long remain, seeing that pronunciation is itself continually altering; custom is lord here for better or for worse; and a multitude of words are now pronounced in a different manner from that of an hundred years ago, so that, ere very long, there would again be a chasm between the spelling and pronunciation of words.

This fact, however, though alone sufficient to show how little the scheme of phonetic spelling would remove even those inconveniences which it proposes to remedy, is only the smallest objection to it. The far deeper and more serious one is, that in innumerable instances it would obliterate altogether those clear marks of birth and parentage, which, if not all, yet so many of our words bear now upon their very fronts, or are ready, upon a very slight interrogation, to declare to us. Words have now an ancestry; and the ancestry of words as of men is often a very noble part of them, making them capable of great things, because those from whom they were derived have done great things before them. Words are now a nation, grouped into families, some smaller, some larger; this change would go far to reduce them to a wild and barbarous horde. Both of these objections had been urged by Bacon, who characterizes this so-called reformation, "that writing should be consonant to speaking," as "a branch of unprofitable subtlety;" and especially urges that thereby "the derivations of words, especially from foreign languages, are utterly defaced and extinguished."

Even now the relationships of words, which yet are so important for our right understanding of them, are continually overlooked; a very little thing serving to conceal it from us. For example, what a multitude of our nouns substantive and adjective are, in fact, unsuspected participles, or are otherwise most closely connected with verbs, with which notwithstanding, until some one points out the fact to us, we probably never think of putting them in any relation. And yet with how lively an interest shall we discover words to be of closest kin, which we had never considered till now but as entire strangers to one another; what a real increase will it be in our acquaintance with and mastery of English to become aware of such relationship. Thus "heaven" is only the perfect of "to heave;" and is so called because it is "heaved" or "heaven" up, being properly the sky as it is raised aloft: the "smith" has his name from the sturdy blows that he "smites" upon the anvil; "wrong" is the perfect participle of "to wring," that which one has "wrung" or wrested from the right; "guilt," of "to guile" or beguile;" to find "guilt" in a man is to find that he has been "beguiled," that is, by the devil, *instigante diabolo*, as it is inserted in all indictments for murder, the forms of which come down to us from a time when men were not ashamed of tracing evil to his inspiration. The "brunt" of the battle is the heat of the battle, where it "burns" the most fiercely. "Haft," as the haft of a knife, is properly only the participle perfect of "to have," that whereby you "have" or hold it. Or take two or three nouns adjective; "strong" is the participle past of "to string;" a "strong" man means no more than one whose sinews are firmly "strung." The "left" hand, as distinguished from the right, is the hand which we "leave;" inasmuch as for twenty times we use the right hand, we do not once employ *it;* and it has thus its name from being "left" unused so often. "Odd" is properly "owed;" an odd glove, or an odd shoe, is one that is "owed" to another, or to which another is "owed" for the making of a pair—just as we speak of a man being "singular," wanting, that is, his match. "Wild" is the participle past of "to will;" a "wild" horse is a "willed" or self-willed horse, one that has been never tamed or taught to submit its will to the will of another; and so with a man.

[We have extracted the above from a little volume just issued by the Rev. R. C. Trench, "On the Study of Words; Five Lectures addressed to the Pupils at the Diocesan Training School, Winchester," which we hope to notice at length; meanwhile we recommend it to our readers.]

Correspondence.

SUNDAY-SCHOOL INSTRUCTION.

Sir,—In the September number of your Journal, I find that the subject of Sabbath-school instruction has attracted attention; for which I am thankful. I feel it a duty to state what I have experienced in Sunday schools. * * * * * *

Every reasonable man must upon reflection acknowledge that a good schoolmaster is of great and invaluable service to the inhabitants of any parish, and more particularly among the lower classes of society: they will also agree that a schoolmaster's profession is far from being a healthy one, if they take into consideration the quantity of bad air he receives into his lungs every day; the constant anxiety for his pupils' improvement; the amount of patience, forethought, and study, which are at all times required of him to meet the daily return of his school-room work. Would it not, then, be a work of Christian charity to free him from the toil of Sunday, and let him have it as a day of rest, both to soul and body? I consider that, if the schoolmaster was allowed to have the Sunday to himself, such a course would be of great advantage to his school. He would then be able to improve his store of religious knowledge every Sunday; and, what is still more necessary, his mental powers would be strengthened and refreshed, and he would be thereby more likely to bear patiently and with a Christian spirit the crosses, disappointments, and trial he meets with during the week.

Perhaps it may not be amiss to point out here the work many masters have to perform on Sundays. Many have to begin school at a quarter-past nine, and teach until half-past ten; then go through the singing Psalms and chants in school; afterwards, to take the children to church and to lead the singing there; after service, they have to take them to school and dismiss them. In the afternoon,. they have to go through very much the same course as in the morning; and, during the whole time, they are expected to interest, instruct, and keep their schools in order—and this is no easy matter in the case of those boys especially, who, during the week, are engaged in out-of-doors employment. In addition to this, it is the custom in some places to take the children back to school after the afternoon service, when the master has to read prayers and dismiss them again. Thus it will be seen that he has six or eight hours of mental and physical exertion. Sunday, instead of being a Sabbath to him, is the most laborious day of the week. * * * * *

I am, Sir, your obedient servant,

K. P.

[NOTE. We have extracted, as our correspondent will see, such portions of his letter as presented any new feature. The rest of it would have been little more than a repetition in other words of what has been already said. We did not, ourselves, advert particularly to the schoolmaster's case; because, if the usual course of proceeding is followed, we do not at all see how, in the majority of instances, the services of the schoolmaster can be dispensed with. If the plan we have ventured to recommend, or something like it, should be adopted, he will reap the advantage of the change in no small degree. At all events, his claim for relief may stand as an additional reason for modifying the system, where it is in excess. K. P. surprises us somewhat, by mentioning the alehouse and cricket-ground as obstacles to sending home before church those children that are near their homes. We are loth to suppose that the former of these, at all events, offers any temptation to such as are the general attendants of Sunday schools. Besides, as of course they are sent home after the school is dismissed, what becomes of them then? He has also misunderstood us in another point. We only recommended those to be dismissed before church whose homes were at no great distance, and whose friends, or some of them, were regular attendants at church. Here, too, our recommendation on the former occasion would materially relieve the master, or person in charge of the children, during Divine service.]

Notices of Books.

AN INTRODUCTION TO ALGEBRA, AND TO THE SOLUTION OF NUMERICAL EQUATIONS. BY J. R. YOUNG, LATE PROFESSOR OF MATHEMATICS IN THE ROYAL ACADEMICAL INSTITUTION, BELFAST. (London: *Simms and M'Intyre.*)

PLANE TRIGONOMETRY (PART II.). BY THE REV. J. W. COLENSO, M.A., RECTOR OF FORNCETT ST. MARY, NORFOLK, LATE FELLOW OF ST. JOHN'S COLLEGE, CAMBRIDGE. (London; *Longman and Co.*)

THE aim of every writer on elementary mathematics should be to develop, in a simple and perspicuous manner, the fundamental principles of science,—to illustrate these principles by the solution of an adequate number of appropriate and well-arranged examples,—and thus to lay a sound foundation for the prosecution of an extended course of analytical research.

When the student has obtained a thorough knowledge of the principles of any branch of science, and has acquired the necessary dexterity in all its fundamental operations, he has surmounted the difficulties which unavoidably beset his first advances, and has approached the confines of those higher and more profound inquiries yet to be entered upon, and which will claim his best attention and call forth his utmost energies. In his onward progress, the student will still occasionally meet with "knotty points," but they will be more easily unfolded and removed than those previously encountered, and he will speedily acquire a "tact and expertness" in the management of analytical expressions, which will prepare and fit him for pursuing higher researches, and for entering on the more profound investigations of those sublime truths which are so profusely scattered around and beside the pathways of science. Though Introductions to Algebra and Treatises on Trigonometry are, year after year, teeming from the press in abundance, still there is room for good rudimentary works on both these subjects, and every attempt to simplify and illustrate their first principles should be favourably received by those who are charged with the instruction of youth, and ought to meet with that success which its merits may truly deserve. Holding the opinion that good elementary books are "treasures of great value," we hail with peculiar satisfaction the appearance of Professor Young's "Introduction to Algebra," and the Rev. J. W. Colenso's "Plane Trigonometry,"

The various works of Professor Young, on elementary and the higher mathematics, have been many years before the public, and are well known to, and appreciated by, all mathematical students; they have been instrumental in improving the taste and stimulating the ardour of many a youth aspiring after mathematical fame. His treatise on algebra has, we believe, reached the fourth edition, and though the present Introduction is in some degree subordinate to the former treatise, it will be found to contain all those principles requisite to prepare the student for carrying on his inquiries to any extent. In the first three chapters of this work the fundamental principles and operations of algebra are very clearly explained and illustrated; and after having fully exemplified the various operations in algebraic fractions, and treated of the determination of the greatest common measure and least common multiple of two or three quantities, the author concludes his third chapter in the following terms:—"The learner has now been conducted through a course of operations sufficiently extensive to justify the expectation that *all* the fundamental rules of algebra have become familiar to him, and that he has acquired some expertness in the management of algebraical expressions." In the fourth chapter (numbered III. by mistake) the author proceeds "to show the application and use of the principles and processes with which the learner has been occupied in actual calculation, where definite arithmetical meanings will be given to symbols which have been employed hitherto without any regard to special interpretation." This and the fifth chapter are devoted entirely to the treatment of simple and simultaneous equations containing two and three unknown quantities, and throughout these chapters many valuable and appropriate remarks are interspersed. The theory of indices or exponents, and the reduction of surds, as well as the management of imaginary or impossible quantities, are then treated of in the next chapter, and these are followed by the discussion of the method of solving quadratic equations, accompanied with the usual number of examples. There are certain equations of the third and fourth degrees which are reducible to quadratics, and to the method of reduction of such equations the author has given a considerable share of his attention. The subject of this (the eighth) chapter is novel in elementary books, and we agree with Professor Young in thinking that it has not hitherto been fully examined, though it is well worthy of attention. Several examples of the third and fourth degrees are here solved by quadratics, and others are proposed as exercises for the student. The general solution of numerical equations of the third and fourth degrees very naturally follows the discussion of the particular examples alluded to, and here we have a sketch of Horner's beautiful process of development of the roots of equations exhibited in a very simple and intelligible form. It is well known that the discovery of the initial figure of each of the roots of a numerical equation is the only thing of any difficulty connected with the process of solution, and the author has supplied a new method for the discovery of the leading figure of a root, which affords material assistance to the learner, and "which will always prove acceptable whatever other aid may be combined with it."

The common process of division is merely the solution of a simple equation, as $ax = b$, while that of the extraction of the square root is the solution of a quadratic, as $x^2 = a$, and hence we see that these processes are intimately connected with the *general* solution of numerical equations, and are only particular cases of that elegant and general process discovered by Horner about thirty years ago,—a process of so much utility that every student ought to be thoroughly acquainted with it. The theory of proportion and progression, and the method of solution of simultaneous quadratic equations are given in chapter x., and the concluding chapter is devoted to the binomial and exponential theorems, and the theory of logarithms. A proof of the binomial theorem is here given, but it is restricted to the particular case of the index being a positive integer, and for the proof of it in its most general interpretation, the student is referred to the author's "Treatise on Algebra."

On the whole, we regard this neat volume as an excellent introductory work; it is very carefully got up, abounding in original and pertinent remarks. It will be read with interest, and we feel much pleasure in characterizing it as one of the best introductions to algebra we now possess.

The answers to the examples for exercise are kept apart from the work, and given in a separate form, a plan which, in the case of junior students, possesses some advantages.

The first part of Colenso's "Plane Trigonometry" was favourably noticed in the April number of the Journal. The second part now before us is supplementary to the former, and contains the investigations of the various formulæ in the higher parts of trigonometry, together with a large collection of excellent examples in all parts of the subject. The first and second chapters are devoted to the proofs and investigations of several well-known formulæ and series, the special object of the former being "to show the different steps by which we arrive at the value of the number π, which is of such great importance in trigonometry, and indeed in every branch of mathematics." Demoivre's Theorem is investigated and applied to the expansion of $\sin n\theta$ and $\cos n\theta$, in terms of θ, the series of Euler, Gregory, and Machin are then obtained, and from Machin's series the value of π is determined to a few places of decimals. Machin's series deduced from the formula $\frac{1}{4}\pi = 4\tan^{-1}\frac{1}{5} - \tan^{-1}\frac{1}{239}$ is well fitted for the computation of the value of π, and by means of this and similar formulæ and series, English as well as foreign mathematicians have extended the value of π to hundreds of places of decimals. MM. Dase and Clausen have calculated the value of π to a great extent, the former to 210 decimals, and the latter to 250. But our countryman, Mr. William Shanks, of Houghton-le-Spring, has pushed his computations to a still greater extent, having determined the value of π to no fewer than 315 places of decimals. His computations were made by means of Machin's formula, $\frac{1}{4}\pi = 4\theta - \theta'$, where $\tan\phi = \frac{1}{5}$ and $\tan\theta' = \frac{1}{239}$; and the value of the number is now being extended, by two independent computers, to 350 decimals.

After noticing Vieta's Property of Chords, and some useful trigonometrical series, the author proceeds in the third chapter to the solution of equations by trigonometry, and to the resolution of $x^n - 1$, $x^n + 1$, $x^{2n} - 2x^n \cos\theta + 1$, and $e^x + e^{-x}$ into simple and quadratic factors, deducing also Cotes's Properties of the Circle. In chapter iv. the author finds the sum of certain trigonometrical series, and the following rule of symbolical algebra, namely, "if $+r$ represent a line drawn in any given direction, then a line of the same length, inclined to the former at an angle θ, may be represented by $(\cos\theta + \sqrt{-1}\sin\theta)r$," is illustrated by some examples of its application.

The two parts together form an excellent work on plane trigonometry, and the large collection of examples appended to the second part will afford ample exercise for the student in every department of trigonometrical research.

GROOMBRIDGE'S FARM AND GARDEN ESSAYS. NO. I. THE CULTIVATION OF ARABLE LAND. Price 4d. (London: *Groombridge and Sons, 5, Paternoster Row.*)

If the first number of the forthcoming series of essays on the farm and garden may be considered a fair specimen of the character of the whole, we can only say that it will merit a favourable reception. We have carefully perused the publication before us, and hesitate not to pronounce it both good and cheap, and, what is still more important, thoroughly practical. There is scarcely any subject connected with the culture of arable land which is not fully discussed in these pages, and in language simple and intelligible. Whoever desires to become acquainted with the minute details of this branch of farming, of the various natures and qualities of soils, and the different kinds of treatment they require, of the proper times and various methods of fallowing, ploughing, and harrowing, &c., will find full and explicit explanations in this essay.

A SELECTION OF ENGLISH SYNONYMS. (London: *J. W. Parker.*)

We have seen this work, in the pages of a contemporary, boldly called "Whately's Synonyms," on what authority we do not know. Whately appears as editor, and, in the course of the work, the Archbishop's writings are far more frequently appealed to than those of any other writer. It is unquestionably the work of a scholar, confident and discriminating, desiring to take our language simply as it stands, and shaking off its past history as much as possible.

"We have seldom in the following pages," says the author, "introduced what are usually considered so closely connected with the subject of synonyms, as to demand a prominent place in a work of this kind, namely, Etymologies." Again, "Our question is not what *ought* to be, or formerly was the meaning of a word, but what it *now* is; nor can we be completely guided by quotations from Shakspeare, or Milton, or even from Addison, or Johnson." . . . "The standard we shall refer to in the present work, is the sense in which a word is used by the purest writers, and most correct speakers of our days." (*Author's Preface.*)

With such views of the extremely rapid flux of language, perhaps the most useful thing the author could have done would have been to have given us a distinct account of the English words which have changed their meaning since the days of Johnson, or which are now *in transitu* with what he calls good authorities, to justify his suppositions; this would have been a good excuse for a short work: for, as books of reference, both this and Taylor's of Norwich, on the same subject, recently noticed by us, are far from complete. With regard to these "best authors of the present day," we are reminded of the covenant and

"The purest code
Of churches best reformed abroad;
Though no two of us can agree,
Where or which churches these may be."

Undoubtedly there would be considerable difference of opinion, even amongst men of letters, as to what recent authors may or may not be considered as exhibiting, in their writings, model English; as to whether any deference should be shown to those popular writers, "whose genius can embellish impropriety, and whose authority can make error venerable;" for such writers are numerous, and influential—Keats, Carlyle, Tennyson, Barrett: whether the chaste "Quarterly," canonizes in its pages, or the more ornate "Edinburgh." Again, with reference to date: "deme unum, atque etiam unum;" if Johnson is obsolete, is his friend Burke, is Paley, is Cowper?

However, the author of the Synonyms does not trouble himself much with quoting modern writers; four or five are all that are appealed to throughout the volume; we are obliged to trust almost entirely to our own recollection, to confirm or contradict the author's dogmas. Were he an ignorant man this would be intolerable, but fortunately he is both well informed and acute, there are no such inaccuracies as occur from time to time in "Taylor's" book; the perception of shades of difference in the meaning of words is amazingly quick and subtle.

"TO TEACH, INSTRUCT, INFORM, EDUCATE" (page 27).

"'Teaching,'" strictly speaking, when distinguished from instruction, is applied to the practice of an art or branch of knowledge; instruction to the theory. A child is (correctly speaking) *instructed* in the grammar of a language, and *taught* to speak the language, 'teaching' may be merely mechanical; while 'instruction' implies a degree of understanding in the pupil, as well as the master. A child who has been *taught* to learn lessons by rote without understanding them, will find difficulty in comprehending *instruction* in the principles of what he has learned. Hence we speak of *teaching* a brute, but never of instructing it. In short, a person who is informed, *knows* something he did not before, one who is instructed *understands* something he did not before. One who is taught *can do* something he could not do before."

"DIFFERENT, UNLIKE" (page 51).

.... "In short, things are said to be 'unlike,' when they might be expected to be like; 'different,' when non-resemblance is in the natural course of things."

"EFFECTS, CONSEQUENCES, RESULTS."

.... "'Effects,' as distinguished from the other terms we have mentioned, are applied to something which *immediately* follows from any cause, whether mental or physical. They can therefore, to a certain extent, be calculated on beforehand. 'Consequences,' are more remote, and spring less directly from causes; they rather follow in the train of an event. We may foresee the consequences of anything, but we always act with a view to its effects. For instance, the effect of wearing clothes, is to cover one; the consequence is that they wear out; we foresee this *consequence* in buying them, but it is with a view to the immediate effect—the covering us, that we act. 'Results,' are still more remote than 'consequences.' 'Consequences' and 'effects' are both applied to a change which is in the act of taking place, while 'result' implies the state of things when the change *has* taken place. Hence it is both more remote and more general."

These are fair specimens, and they certainly remind us of the clear, strong, homely sense and style of Whately, and of his logical keenness. How good again is the following distinction:—

"ROMANTIC, SENTIMENTAL."

"Both these terms are used to express the effect of ill-directed or excessive feeling and imagination; but in romance—the imagination, in sentiment—the feelings have the predominance."

Many of the brief occasional remarks are full of sense, point, and knowledge of human nature. Thus, in connection with the above:—

"Sentimentality is the characteristic of a weaker mind, and is therefore less curable. It is easier to correct an abuse of imagination than an abuse of feeling."

When distinguishing between "meek" and "soft," he observes, "Many think that a woman whose manners are very soft must, necessarily, be meek; whereas, softness is consistent even with self-will and obstinacy." This strongly reminds us of Crabbe's admirable lines:—

> "Your friend has found it not an easy thing,
> Beneath his yoke, this yielding soul to bring;
> These weeping willows, though they seem inclined
> By every breeze, yet not the strongest wind
> Can from their bent divert this weak but stubborn kind."

In some few cases, the author is minute almost to trifling—seeming to hesitate, himself, about the turn of the scale.

"To 'alleviate' is only used to describe what is done to others; to 'mitigate' is *rather oftener* applied to ourselves."—Page 29.

We might quote several more instances of the same kind, where good writers would, we are sure, use either of the discriminated words indifferently. Sometimes we think the author is wrong.

"To *announce* is applied to persons and tidings, but not to opinions; to *declare* and *proclaim* to tidings and opinions, but not to persons."

Surely we say with propriety, "Victoria was proclaimed Queen."

"*Elegant* may be applied to mental qualifications, which *graceful* never can."

Are we not then permitted to speak of a "graceful style," "a graceful writer?"

"*Joyful* and its conjugate word *joy*, are used for the highest degree of pleasure, and always for pleasure excited by some external event."

We do not believe that the sense of the word *joy* has altered since the days of Pope, who writes thus:—

> "What *nothing earthly gives* or can destroy,
> The soul's calm sunshine and the *heartfelt joy*."

"*Glad* is the lowest degree of pleasure."

He should rather have said, it indicates a lively and self-displaying, not an intense pleasure. "Almost *too happy to be glad*," is the forcible and beautiful expression of one of our modern poets.

Other instances of the same kind might be pointed out, but we do not wish to pick holes in a work of merit and usefulness.

It is quite in vain for a scholar to attempt to dismiss all the influences of his scholarship. His etymological knowledge evidently haunts the author all through his book, notwithstanding his attempts to make it plain, matter-of-fact, and unpedantic.

FORTIFICATION; FOR OFFICERS OF THE ARMY AND STUDENTS OF MILITARY HISTORY: WITH ILLUSTRATIONS AND NOTES. BY LIEUT. HENRY YULE, BENGAL ENGINEERS. (Edinburgh and London: *Blackwood & Sons.*)

SINCE the publication of our August number we have had the pleasure of perusing this excellent and useful work. We say the pleasure, because, as our pursuits do not generally lie among parapets and ditches, ramparts, bastions and barbettes, we conceived that Lieut. Yule's book would prove somewhat tedious and uninteresting in the reading. On the contrary, we must do it the justice to remark, that we have read some novels and many a poem which did not possess the interest of this volume; and we verily believe that even those who are habitually light readers, were they to "screw their courage up," and elevate their thoughts and views to the lofty heights of some of Lieut. Yule's ramparts and bastions, and sit down with the heroic daring of resolution required by such readers for the study of ramps and traverses, flanks and curtains, gorges of bastions and demigorges, as well as the various systems of Vauban and Coehorn, would rise much gratified with the result of their courage, and would have gained some insight into the covered-way, with all its secret recesses, tunnels, and staircases.

It is stated, in the preface, that "a small impression of a work containing the substance of this was printed last year, for the use of the Scottish Naval and Military Academy at Edinburgh, which met with the approval of some interested in the subject." The approbation bestowed on the first impression suggested its publication in the present enlarged form. The aim of the author, in this essay, has been "to give principles and essential details in a natural and readable order, and freely to use biographical and other illustrative notices, with the view of giving something of life-like interest to a study which is too often vaguely regarded by soldiers as a dim compound of strange angular diagrams and technical jargon."

In a preliminary chapter, the author commences with some geometrical problems of frequent occurrence in plan-drawing, which ought to be well understood before proceeding with the practical part of the study: he then proceeds with the definitions of the various terms used in fortification, which are given with much clearness; and with the principles of outline and general rules, which are also treated in a very perspicuous manner. After a lucid description of the various forms of field-works, the calculations necessary for the construction of such works are given in detail; and in the interesting discussion of "extended systems of works" which follows, the author introduces notices like these:—"The camp which Frederick II. fortified in the vicinity of Schweidnitz, in 1761, when hemmed-in by the Austrian and Russian armies, was the means of saving him from destruction at the most critical period of his history, and had great fame in the last century as a specimen of field-fortification on a large scale. The camp was of an oblong form, and consisted of a great number of detached works on a chain of low hills, covered in front by rivulets, which left few points exposed to attack." Again, "One of the most remarkable instances in history of the use of the field-engineer's art, is that naturally so oft referred to by every English writer on military subjects—the lines which Lord Wellington threw up to cover Lisbon, and behind which, retiring after the victory of Busaco (1810), he baffled the endeavours of the French, under the Emperor's ablest lieutenant." By the introduction of similar notices, the author illustrates the principles of field-fortification in a very pleasing and instructive manner.

In permanent fortification, the author commences with a description of "Vauban's First System," and, after a brief explanation of the modes of attacking and defending a fortress, he adverts to the "Modern System," as well as to the systems of Coehorn, Montalembert, Carnot, and Boùsmard. Fifteen portraits, executed in a very creditable manner, of these and other eminent men, are interspersed throughout the volume; and an ample appendix contains interesting biographical sketches of all those celebrated men whose portraits have been given in the work. This appendix will be read with much interest, as also the "Glossary of Military Terms," with which the volume closes.

In the eight large plates, illustrative of the principles of fortification, there are given the plans of several fortifications both at home and abroad.

Of this volume we must observe, that while it is well calculated to aid the student in the acquisition of the principles of military science, it is, at the same time, more than ordinarily attractive by the introduction of so many interesting historical notices.

SCHOOL SERIES, EDITED BY THE REV. G. R. GLEIG, M.A., INSPECTOR-GENERAL OF MILITARY SCHOOLS. (London: *Longmans.*)

1. THE FIRST THREE BOOKS OF EUCLID. BY THOMAS TATE, F.R.A.S., OF KNELLER TRAINING COLLEGE, TWICKENHAM.
2. GEOGRAPHY FOR THE USE OF BEGINNERS. BY WILLIAM HUGHES, F.R.G.S., LATE PROFESSOR OF GEOGRAPHY IN THE COLLEGE FOR CIVIL ENGINEERS.

Mr. Gleig did well to secure for his School Series the services of two such men as Mr. Tate and Mr. Hughes; their reputation is a guarantee that the volumes to which their names are attached deserve the confidence of the public.

The first of the two works above-mentioned appears to be a reprint of Mr. Tate's "First Three Books of Euclid's Elements of Geometry, after the text of Dr. Robert Simson," which has already been for some time in the hands of schoolmasters. In its present shape we can give it our hearty commendation, as it has been considerably reduced in price. Now that the Committee of Council on Education encourage an acquaintance with Euclid in preference to mechanics, mensuration, and astronomy, this cheap edition of the First Three Books will be particularly acceptable to pupil-teachers.

Of Mr. Hughes's Geography, as a book "for the use of beginners," we cannot speak too highly.

The author has very properly avoided any general account of the physical geography of the world, and after giving the most indispensable preliminary notions of the figure and surface of the earth as an "Introduction," has confined himself to a description of the separate portions of the land. This plan is one of the greatest merits of the book. It enables the author, without any constrained arrangement of the subject, to follow out what we may call the natural method, commencing with our own country, and proceeding from that to the nations situated nearest to us, and so on to those that are most remote. The child's ideas about the world in which he lives are thus gradually expanded, until he is prepared to take in the whole of it at one view; whereas, if the opposite course is pursued, he is puzzled and confused by the novelty and vastness of the subject so suddenly presented to his mind, and his progress is literally backwards, for he is made to pass from the difficult to the simple. One of the surest tests of the utility and judgment of a teacher is the manner in which he lays out the matter of instruction, in regard to quantity, arrangement, and relative importance; and this, in like manner, is the surest test of the merit of an elementary school-book.

The manner in which Mr. Hughes has carried out his plan is worthy of notice. He first treats of the Physical Geography of each of the great divisions of the land, and then proceeds to give a separate account of each of its National Divisions. "Physical geography," says he, "is the most important branch of the subject; both because the natural features of the earth are liable to little change and in most respects continue the same through all ages, and also because they exert a powerful influence over the development of human industry. That is to say, the occupations of any people will in a great degree depend upon whether the country which they inhabit is maritime or inland, mountainous or level—whether it contains rivers, or is generally arid and sterile; as well as upon what are its climate and its natural productions—whether belonging to the mineral, the vegetable, or animal kingdom." The limits of his space have not allowed him to trace this connection, nor indeed to account for any of the phenomena which he describes; but the facts are given in their proper consecutive order, and it will be the duty of the teacher to point out more particularly the relation in which they stand to one another. What we ought to have in class-books is not so much actual detailed instruction, as a good framework of facts for the teacher to fill up.

The book is admirably adapted for use in elementary schools, and we trust that it may also find its way into our middle schools, where some of the old class of geographies, consisting chiefly of lists of names, still maintain their ground against the improved works that are now published.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 111.—*Proposed by P. T.*

A SILVER shield in the form of an octagon weighs 150 oz., and is ·09 inches thick; required the length of the side.

Answered by Mr. Herbert, Mr. Righton, Mr. Henry, Mr. Dyer, and the Proposer.

$$\text{No. c. in. in the shield} = \frac{150 \times 1728}{10470}$$

$$\therefore \text{ Surface of the shield} = \frac{150 \times 1728}{10470 \times {\cdot}09} = 275{\cdot}07 \text{ sq. in.}$$

Let x = the length of the side, then we have from the formula for the area of the polygon,

$$\frac{8}{4} \cdot x^2 \cdot \cot\frac{180^\circ}{8} = 275{\cdot}07;$$

whence we find, $x = 7{\cdot}547$ inches.

QUES. 112.—*Proposed by Mr. Draper, Rochester.*

Given a and b the parallel sides of a trapezoid inscribed in a circle, and the obtuse angle double the acute angle; to find the area of the trapezoid.

Answered by Prismoid, Mr. Cock, H. P., and Mr. Hill.

Of the two parallel sides let a be the greater; then because the opposite angles are together equal to two right angles, therefore each acute angle = $\frac{1}{3}$ of 180° = 60°.

Let the sides which are not parallel be produced until they meet; then the triangles thus formed will be equilateral, the side of the greater being a, and that of the smaller one b. Hence we have,

$$\text{Area trapezoid} = \text{difference of the areas of the triangles,}$$

$$= \left(\frac{a}{2}\right)^2 \times \sqrt{3} - \left(\frac{b}{2}\right)^2 \times \sqrt{3}\,*$$

$$= \frac{\sqrt{3}}{4} \cdot (a^2 - b^2).$$

QUES. 113.—*Proposed by Mr. O'Clazy, Durham.*

Being a friend of the cold-water system, I intend to make a circular pond in the front of my house, and a circular island in the centre, raised a feet above the surface of the water, which is to be d feet deep: I request the aid of my Journal friends, to tell me the breadth of the water, so that the excavated earth may just raise the island to the height required.

Answered by Mr. Sheppard, Mr. Dyer, Mr. Salter, Mr. Sothern, and the Proposer.

Let r = the radius of the smaller circle, or island; and x = the width of the water,

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* See Tate's Mensuration, &c. p. 150.

$$\text{Area ring} = \pi\,(2r + x)\,x;$$

$$\therefore \text{ Content of earth to be excavated} = \pi d\,(2r + x)\,x.$$

$$\text{Earth to form the island} = \pi\, r^2 \times a.$$

Hence we have by the question,

$$\pi d\,(2r + x)\,x = \pi\, r^2\, a,$$

$$\therefore x^2 + 2rx = \frac{a r^2}{d}.$$

$$\therefore x = r\left\{\sqrt{\frac{a+d}{d}} - 1\right\}.$$

LIST OF MATHEMATICAL ANSWERS.

Mr. Herbert, Wootton, ans. 111, 112, 113; Mr. O'Clazey, Durham, ans. 111, 112, 113; Mr. Sheppard, ans. 111, 112, 113; Prismoid, Tewkesbury, ans. 111, 112 113; H. P., Newcastle, ans. 111, 112, 113; G. J., Alnwick, ans. 111, 112; Mr. Sothern, Burton Wood, ans. 111, 112, 113; T. V. Henry, ans. 111, 112, 113; H. Heppingstaed, Manningham, ans. 111; E. Carthew, Roehampton, ans. 111, 112, 113; J. Salter, Durham, ans. 111, 112, 113; Mark, ans. 111, 112, 113; J.T. Cock, St. Ives, ans. 111, 112, 113; W. Righton, Jun., ans. 111, 112, 113; Sam Dyer, Wanstead, ans. 111, 112, 113; E. Rutter, Sunderland, ans. 111, 112, 113; R. Thompson, Berwick, ans. 113; J. B., O. Malton, 111, 112, 113; J. Rowlatt, Evercreech, ans. 111, 112, 113; G. Morris, Gosport, ans. 111, 112, 113; H. Hill, Mortlake, ans. 111, 112, 113; A. M., ans. 111, 113.

NEW QUESTIONS,

TO BE ANSWERED IN OUR NUMBER FOR DECEMBER, 1851.

QUES. 114.—*Proposed by Mr. O'Clazey, Durham.*

If a person travel round the earth at the equator, how many square miles of its surface may he see, supposing the earth to be a perfect sphere, 8000 miles in diameter, and the height of the person's eye five feet?

QUES. 115.—*Proposed by Prismoid, Tewkesbury.*

To determine an expression for the area of an octagon in terms of the side.

QUES. 116.—*Proposed by Mr. Sheppard.*

A wheel 6½ feet diameter is obstructed by a stone 3 inches high. Required the force necessary to surmount this obstacle, supposing the line of traction to pass through the axis at an angle of 30° to the horizon, and the load upon the axis to be 10 cwt.

To Correspondents.

R. A. The paper was published in an early number of the "Educational Magazine," and is already in the hands of many of our readers. We are obliged for the Examination Papers, but they are hardly suited for us.

MANCHESTER AND SALFORD EDUCATION BILL.

THE provisions of the plan embodied in the Manchester and Salford Education Bill, may eventually have so extensive a bearing upon our national education, that an abstract of the proposed Bill, as recently circulated by its friends and promoters, must be regarded as no unimportant document, although the separate clauses of the Bill will probably receive considerable modification, before they are actually submitted to Parliament. The measure would be entitled to attention, if it were only on account of the united support which it has received from the bishop and leading clergy, as well as from the ministers of various denominations and from the laity of Manchester. But its principal claim to notice is, that the plan contained in it is one which it is proposed, first, to apply by way of experiment to the populous district where it has been devised, and then, if successful there, to extend it to similar districts, if not to the country at large. Under this view, whether it be actually carried into effect or not, or whether, if carried into effect, it prove successful or not, it can hardly fail of producing consequences of considerable moment. This will sufficiently appear from a general outline of the plan proposed.

The following is the abstract which has been published as an appendix to the report of a conversazione of friends and promoters, held in the Town Hall, Manchester, on the 28th of August last, the Bishop of Manchester in the chair:—

1. The Manchester and Salford Education Bill proposes to authorize a rate, not exceeding sixpence in the pound, upon all property within the two boroughs, for the purpose of placing the means of education within the reach of every inhabitant.

2. The education so secured will be absolutely free from expense to all who desire to avail themselves of it.

3. This bill provides for the maintenance and effectual support of all existing schools connected with religious bodies whose claim to participate in the parliamentary grant of education has been recognised by the legislature.

4. This bill provides for the admission of all schools similarly qualified, whether actually so participating or not.

5. Schools not subject to government inspection will not be required to become so by this bill.

6. No interference with the ownership, discipline, or management of existing schools is allowed by this bill, which is expressly designed to stimulate and extend the system produced by voluntary effort, to a degree commensurate with the wants of the community.

7. Proper security is taken by this bill for the religious character of the education to be so offered, but attendance on the teaching of distinctive religious doctrine is in no cases made compulsory.

8. No schools will be excluded from the benefit of the rate on account of their connection with any religious community, but all will be admitted on equal terms.

9. Every parent will be at perfect liberty to select for his child such school as may be in his opinion at once the most convenient, the best conducted, and the most in accordance with his own religious opinions.

10. No part of the rate required can be applied to the erection or establishment of any schools (except as mentioned in No. 12); but the whole amount raised will be applied directly in payment for instruction actually received by the children within the two boroughs.

11. Such payments will be in all cases exactly proportionate to the number of children actually attending school, and will therefore cease whenever the services which they are intended to remunerate, cease to be available.

12. In districts where school accommodation shall be found insufficient, and shall so continue after due notice, provision is made for the establishment of schools out of the rates, so that an adequate supply of school accommodation is fully guaranteed by this bill.

13. The administration of the funds raised from the rates is effectually secured to the representatives of the ratepayers, periodically elected.

14. The principle of local self-government has been maintained throughout this bill, reference being made to a central authority only in cases required for the protection of ratepayers, parents, or children.

15. Ample security is taken by this bill for the efficient inspection of all schools admitted into union,—for the employment of properly qualified masters, and for raising the general standard of education.

In order to render this very brief abstract of the Bill more intelligible, it may be proper to state more fully what is intended under some of the heads of it, as may be gathered from the speeches at the conversazione. The distinguishing characteristic of the scheme is the imposition of an educational rate, to be collected under the authority of an Act of Parliament. One important condition to be required of those who would partake of the benefits of this rate, though not distinctly stated in the above abstract, is, that schools assisted out of the rate shall use the Holy Scriptures in the teaching of the children. Another main feature of the plan is, that existing schools, of whatever religious denomination, are to be supported out of the proceeds of the rate, in proportion to the number of children actually attending them. The conditions of inspection are to remain nearly the same as those now imposed by the Privy Council. Under head 7, is contained a regulation by which any children may be exempted, if it be formally demanded, from the necessity of learning any religious creed, catechism, or distinctive formulary in the schools of their own selection. From head 10 it appears that the building of new schools is to be left as far as may be to voluntary efforts; but when built out of the rate, as provided for under head 12, though the use of the Holy Scriptures is to be enforced, it is expressly declared that no creed, catechism, or distinctive religious formulary shall be taught therein, as they will be entirely disconnected from any religious body, congregation, or sect.

It would far exceed our limits to attempt to discuss all the important principles of education, involved in this plan. We must therefore confine ourselves to some remarks upon two or three particulars connected with it.

And first, as already observed, when viewed only as an experiment, it is to be regarded as a matter of no small concern. The unanimity hitherto displayed by its friends and promoters has been such, that their failure or success in carrying their plan into effect is equally important. For if they fail in this first step, after such apparent concord in attempting it, it will require no ordinary courage to make a second trial. And if, on the other hand, they succeed in carrying their plan into operation, whether that plan answer their expectations or not, the question of the general education of the poor will in either case be considerably affected. For if the plan, when applied, be found to produce only a fair proportion of the benefits which many seem to anticipate from it, one result will most probably be its almost general adoption in populous districts. But if, when applied, its results fall greatly or altogether short of what has been hoped for, then the question of obtaining the means of educating the poor by a compulsory local rate will, probably, for a considerable time be regarded as settled, and the friends of general education must be content to fall back upon the voluntary system, aided as at present, by such assistance as can be procured from the State.

Another observation is suggested by that part of the plan which seems to have procured for it such general acceptance. This as stated at the conversazione by an Independent minister, Mr. R. Fletcher, is, that according to his view, " the rate is intended to be applied simply to the secular part of the instruction, and the religious portion is entirely left to the conscience of the parent or guardian of the child, without interference from the State." " The money is not given to the schoolmaster or school-managers to support the school establishment; but it may be regarded as given, in fact, to the parents to send their children to school. You pay simply in proportion to the number of scholars sent, and therefore it is just the same as if the ratepayers gave the money into the hands of the parents and said, ' We want your children educated, well educated; we will take care that the masters you send them to are persons competent to give secular instruction; we shall examine them as to their fitness to teach, and your children, as to their progress from time to time; but we leave you to select the school of whatever religious denomination you wish them to go to, and to have them taught such religion as you wish; with that we wont interfere.' Who shall say that the parents have not a right to choose the teachers and the school, and the religious teaching they prefer? or that this method is an invasion either of churchmen on the one hand, or of dissent on the other? In my view there would be forcing of conscience and infringement of religious liberty, if parents were obliged to accept an education for their children without religion, when they deemed it essential that religion should be blended with it, or if they were compelled to submit to some prescribed form of religion; but I can, dissenter as I am, come in with this scheme, as it leaves all to choose such religion as, in the sight of God, they believe to be right and proper, without the State interfering to say how it is taught, or affecting to judge at all in the matter, its inquiries being wholly restricted to the secular instruction."

Now a plan such as may be thus described, does appear to be one which any person who is convinced of the importance of general education, may conscientiously take part in without any compromise of religious principle. But then does the plan in question, as at present proposed, sufficiently correspond with this description of it? It is true that, as at present explained, it does not propose to interfere with the doctrines taught in the schools already established. But, as stated under head 7, whilst proper security is taken for the religious character of the education offered, attendance on the teaching of distinctive religious doctrine is in no case made compulsory; that is, in a Church of England school, even the children of professed members of that church, if their parents please to require it, may be exempt from being taught any distinctive religious doctrine. Now it does appear difficult to conceive how such a condition can be imposed by Act of Parliament upon any school, whether of Churchmen or Dissenters, without the State thereby manifestly interfering to say how religion is to be taught; certainly in imposing the above condition it cannot be said, not to affect to judge at all in the matter. It is daily becoming more and more a generally recognised principle that religion should be blended with education. Nay, as was most forcibly expressed at this very meeting by the right rev. chairman, many have come, as the bishop declares that he has, "not to the surmise, not to the opinion, not to the conviction, but to the knowledge, that education without religion is a nullity, and an unreality." But then, surely, if religion be so essential to education, it ought to be truly and essentially embodied in it, and enter more or less into every part of it. And as religion should influence every action of daily life, so it should, as far as possible, be interwoven with every part of the daily teaching of children. This seems to apply in a peculiar manner to what ought to be the teaching of the youthful members of the Church of England. At admission into that Church it is specially enjoined upon those who have brought the infant for admission, to see that it be taught so soon as it shall be able to learn, what a solemn vow, promise, and profession has been made by them for it; and chiefly, they are to provide that it may learn the creed, and all other things that a Christian ought to know and believe to his soul's health. Now what more likely to lessen a child's reverence for such teaching, or to destroy the humble and trustful confidence of a child's belief, than to see some of its companions daily exempted from instruction, which it is told is so necessary as to have been publicly ordered by the Church. How can this duty be mentioned without suggesting to the inquisitive mind of a child, why then are not my schoolfellows so and so taught the same? To raise questions of this sort in the mind of a child, before it is at all capable of judging between opposite opinions, can hardly fail of being most injurious both to the child who is to receive religious instruction and to the child who is to be exempted. And it seems strange that Dissenters have not objected to the evils of such a system as strongly as Church people. Perhaps it may be, that less definite teaching being prescribed by the former, the admission of the condition in question may in their case involve a less apparent sacrifice of principle, than where a distinctive formulary for religious instruction has been enjoined. At all events, we do not see how, in a place like Manchester, where schools of every religious denomination may be found, and where, according to the provisions of the proposed Bill, grants to each are to be in proportion to the number of scholars, it can be said that the positive condition of exemption from religious instruction, whenever demanded, is necessary to the trial of the experiment of education by a local rate; nor, indeed, do we see how such a condition can be fully and honestly observed, in any plan which professes to secure the religious character of the education to be offered. How far in smaller places, not circumstanced as Manchester, some allowance may be made, is another question. But in such cases, whether as regards Churchmen or Dissenters, it would surely be preferable to give a permissive power of making exceptions according to circumstances, rather than to impose an absolute condition upon all. There would in such a course be less occasion of division afforded, and less temptation to sacrifice of principle and of conscience.

As already observed, the building of new schools is to be left as far as possible to voluntary efforts. But when in the case provided for under head 12, provision is to be made for building schools out of the rate, these schools are to be entirely disconnected from any religious body, and it is expressly declared that no creed, catechism, or distinctive religious formulary shall be taught therein. Of this part of the plan, the friends and promoters of the bill say, that they are prepared to defend, but they do not feel themselves called upon to advocate it, as its introduction is rather in compliance with the necessities of the case than the free expression of their own feelings and wishes. It seems so unlikely that this part of the plan will be adopted, especially in a measure which is only to be regarded as an experiment, that we will not now dwell upon our many objections to it.

But if the proposed measure become law, in whatever form and under whatever modifications this may be effected, there is one obstacle to its successful application, which, unless it can in some degree be removed, will probably do more to disappoint the promoters of the plan than all other obstacles put together. We mean the parent's taking the children from school as soon as they are able to earn anything. If this be the case, as we have in former numbers of the Journal shown that it is, in agricultural districts, where the employment of children is only at certain times of the year, how much more in manufacturing districts, where employment is independent of the seasons, and where, since the extensive introduction of machinery, every measure of strength, or rather every subdivision of manual labour, however small, if only its regular application can be depended upon, may be turned to account; and where, too, the wages of the parents are so variable, and liable at certain times to be so reduced, that the smallest additions from their children's earnings may be of great importance. The mere saving of threepence or fourpence a week for schooling, which is the utmost that securing education to the poor absolutely free of expense can effect by the proposed plan, will, it is to be feared, be regarded but as a small boon, when set against the two or three or four shillings which might be earned in the mill or workshop. How then is this obstacle to be dealt with?

It has always appeared to us, that the great problem, as regards the proper education of the poor, is to devise some plan, which after the earliest years of infancy and during the yet early period of youth, would combine some school-teaching with profitable employment and actual training in works of industry. The common working man spends the greater part of his time in acts of labour, and can devote but a small portion of it to reading and such like exercises. The natural effect of constant bodily labour is to render the mind indisposed for intellectual exertion: just as constant mental employment is often found to make the student unwilling to take even such bodily exercise as is essential to health. Under the present system the youthful labourer is generally in early boyhood, or rather in childhood, transferred at once, and for life, from the schoolroom to the field or manufactory—from the exercise of the mind to the labour of the body, and from the society of fellow learners to that of fellow workmen. Thus reading and such like pursuits give place altogether to manual employments, and the mind becomes first indisposed to, and then almost incapable of any mental exertion.

Now the obvious remedy for this evil seems to be, to endeavour to render the transfer from the school to a course of uninterrupted manual labour more gradual, or rather less sudden and complete than it generally is. Thus in agricultural districts children may be permitted, as indeed they often are, to go to work at the seasons when they can be employed, and when not wanted in the field to return to school. And young men who in summer and autumn are engaged in labour from morning to night, may during winter spend their otherwise unoccupied evenings in keeping up and improving the knowledge gained at school. Thus the mental faculties may be kept in exercise, and the employment of the mind combined with the labour of the body, and the powers of the two may grow and strengthen together and be made mutually subservient to one another. The actual progress in school learning under such a system may at the time appear less, and the attendance at school be less regular, but the knowledge actually acquired would be more lasting, and the discipline of the school might even be extended to the field. And surely with a little forethought and arrangement, something similar might be devised for those engaged in workshops and manufactories. It is true that in the latter, employment is not regulated as in husbandry by the seasons; but the fluctuations of trade upon which employment in manufactories depends, are scarcely less frequent than the changes of the year, and certainly not less liable to extremes. And when at such periods numbers can only be partially employed, what greater mitigation of the evil to the young than a system which would afford them an opportunity of turning to good account at so important a part of their lives, an interval which would otherwise be misemployed, and of keeping up and adding to the learning already acquired? As regards that early part of life when children are first employed in manufactories, it would certainly be a very great advantage for them, and could occasion but comparatively little loss either to their parents or masters, if they spent only half the usual time at work, and the other half at school. Thus the best of their bodily strength would be expended in labour without injury or exhaustion, and at the same time their minds would be exercised and cultivated; they would earn considerably more than the expense of schooling, and be laying the foundation for becoming better workmen by uniting the improvement of their moral and rational powers with the acquisition of manual dexterity and habits of labour. One probable advantage would be that the regular attendance and strict order absolutely required in the manufactory, would at least in some degree be extended to the school. Another benefit would be that the masters of the manufactories would have a more direct interest in the schools, and would thus have an opportunity of manifesting concern for the welfare of their youthful work-people beyond what may now appear, when their attention is mainly directed, as far as the management of their mills requires it, to obtaining the greatest amount of labour at the least cost. It may be objected that the organization of such relays of youthful workers would occasion more trouble and superintendence than the produce of their labour would repay.

But it is obvious that the principal trouble would be in its first adoption and establishment, and that this might soon be overcome. The regard for the good of the children which such a system, if voluntarily adopted, would indicate on the part of the masters, would ensure the good-will and co-operation of the parents. The working by relays is, we believe, no novelty in manufactories even as regards children, since the limitation of their hours of labour by Act of Parliament. Skill similar to that so successfully and perseveringly applied to purposes of art, will we may venture to hope, be willingly applied with no less diligence and success to the higher purposes of promoting the temporal and spiritual welfare of the rising generation of artisans, by so regulating their hours of labour, and subdividing their employments, as to afford them opportunities of employing the mind as well as the body, and of increasing in wisdom as they increase in stature. But the subject is too important to be passed over with a mere cursory notice. We will, however, at present only add with reference to the proposed plan at Manchester, that, as it appears to us, its promoters will do but little by it towards improving general education there, unless they can combine a certain amount of early remunerative employment with regular attendance at school.

THE CAMBRIDGE INDUSTRIAL SCHOOL.

In our Journal for August we extracted at length from the First Annual Report of the Industrial School, recently established at Cambridge, in the Victoria Road. From it we endeavoured to show the professed object of the school, the means used by its promoters to accomplish their object, and the effect which up to that time had been produced by their labours. For information upon these points we must therefore refer our readers to what we there recorded. We at the same time expressed our hearty good wishes for the success of the institution, and our desire to render our pages in every way subservient to the promotion of the important work in which its supporters are engaged.

Accordingly, we now take the earliest opportunity of noticing an account which we have received of a public meeting, holden in the Town Hall at Cambridge, on the 28th of October, for the purpose of giving greater publicity to the principles and objects of this Industrial School. The mayor, who acted as chairman, stated that he had been induced, by reading the First Annual Report, to visit the school, and that that visit had materially increased his interest in it; and that he believed, if the institution were carried out to a much greater extent, an incalculable amount of benefit would be conferred upon the town and neighbourhood.

The first resolution moved was to the effect, that the condition of the poorer classes in England is such as to render institutions of the nature of Industrial Schools desirable. In supporting this, it was shown that schools in which there is a combination of moral instruction and industrial training will do much towards the diminution of that great extent of juvenile delinquency that is complained of in the reports of the Inspectors of Prisons; and that the object of the Industrial School is to train boys, after their release from the National School, so that they may go into the world with habits of industry, and with some skill in trade. It was also observed, by another speaker, that mere physical want is not the grand evil we have to contend against, but vice, idleness, and the want of self-command; that, having seen a good deal of the worst part of large cities, he had always been struck by the vast amount of energy displayed by the blackguard classes, but had looked in vain for industry or order; and that one admirable feature in the present school is, that it does not reject boys because they have been bad before, but, on the contrary, has open arms for outcasts.

The second resolution was, that the plan of the Cambridge Industrial School is well adapted to the circumstances of the town, and deserving the warm support of the inhabitants. In moving this, the speaker said, it was natural to think that Cambridge should set an example in educating the poor, and that he trusted it would be followed all over England; and he ventured to suggest, that many undergraduates would do well if they would just take a walk to the Industrial School, or the Victoria Asylum, and there learn one of the important parts of a clergyman's duty. It was remarked, by another speaker, how exceedingly well adapted the institution is to boys who are running about without occupation or object, and who are a first-rate material to work upon—active, and energetic, and with plenty of fire if it could be properly directed. These boys have probably been at the National School, where they have got tired of their books; and the combination of out-door and in-door education, under the same master, is just the thing for them. But the moral influence exercised over the boys is perhaps the most important feature in the institution. They are tempted to enter it by the prospect of benefit in this world, and the opportunity is taken of teaching them something with regard to the world to come.

The third resolution was to the effect, that the success of the institution has been highly encouraging, and warrants the hope that the most sanguine expectations of its promoters will be realized. This resolution was moved and seconded by two clergymen, the Rev. H. Goodwin and the Rev. W. F. Witts, with whom the idea of the school originated, and to whose exertions it is greatly indebted. Mr. Goodwin, before speaking of the school itself, first adverted to several prejudices against it. It had been objected, that they were training a class of operatives who were not required, and who, if required, would be produced, and that by thus violating the rules of political economy they were doing a great deal of mischief. To this he replied, that they were not introducing a score of new and unnecessary gardeners, tailors, and shoemakers into the town every year; but taking idle boys and making them industrious boys. Then it was said that they would injure the smaller tradesmen by apprenticing boys, so to speak, to the school. But, so far from injuring them, it would be an advantage to the small tradesmen to take boys as apprentices who had already at the school got some knowledge of a handicraft, and it was notorious that a boy apprenticed to a tailor or shoemaker was a loss to his master at first, cutting away good cloth or good leather. But it never was the intention of the promoters of the school to make either tailors or shoemakers, but that the boys should learn the use of their hands. And, for this reason, it would be a good thing, if they had money enough, to have a carpenter's shop or a forge. But they had no desire to make tradesmen. Again, several subscribers, and a Government Inspector, had said, "It is all very well; but the boys will eat your heads off." They thought it impossible to give the boys a dinner every day. But facts are stubborn things. Now for more than a year the boys had had a very plentiful dinner every day, at a price which he should have scarcely conceived it possible to supply it. The poor, too, themselves had objected to send their boys to the school. But they had outgrown that difficulty, and they might now have as many boys as they pleased; and he thought he should rather astonish the magistrates if he were to state the names of some of them. He thought the institution might serve as an example for other places. He had had several applications for information; and at Ramsgate an Industrial School had been established upon the Cambridge model. In speaking of the actual working of the school and its effects upon the boys, he said, although it was to a certain extent a reformatory institution, and did not refuse any simply because they had been in trouble, still it was not merely reformatory. They took boys who could get no employment: that was the simple title to admission. The general character of the boys when admitted was very rough, and the effects produced upon them should be estimated with respect to that character. The effect produced with respect to steadiness of working habits was truly marvellous. Boys who had been mere idlers were now in thorough good working order, and, if hired out, were worth a great deal more than before. They had, too, in a remarkable manner given up their bad habits, such as using bad language. One poor boy had said to him, "You would not think so bad of me, if you knew the sort of life I have led, and the constant sound of blasphemy in my ears." And, besides giving up bad habits, they had been brought to adopt good ones. Some had been led to attend the Sunday School; and there was one instance of a boy having become a good Sunday-school teacher. With respect to the moral effect produced, he would mention the case of a boy who had been in gaol more than once, whose widowed mother, after he had been in the school two or three months, came and expressed with tears her gratitude for the result to the boy, and said that he used to be a perpetual torment to her, but for the last month or two he had been a real comfort. Now such things could not occur alone, and they might rest assured that, if such a moral influence was produced upon one unsatisfactory boy, other as great results were produced. But the success of such institutions would depend, in a very great degree, upon the efficient character of the master. The committee might go and superintend at certain times, but, after all, it was the master who was there constantly at work, and unless he were an efficient person no good would come of it. He wished people to go and look at the school themselves, and see if a great moral work was not going on. He did not wish to make out that the boys were angels; but he did mean to say that, by God's help, they should not be the devils they might have been had there been no Industrial School. They wished the school to be considered a place for boys who were not able to get anything to do, from whatever cause that inability might arise; and that it might be impossible for any boy to say that he was idle because no man would hire him. They wished a boy in trouble not to consider himself quite an outcast when he came out of gaol, and not to have an excuse for saying, "If we are not thieves, what are we to do for a living?" They wished the school, also, to be a kind of nursery for emigration. Thus, a young person aged nineteen, who had recently applied at the school upon the subject, and was ignorant of the kind of employment that would be of use to him abroad, was recommended to attend the Industrial School for the winter, and then present himself as a candidate for a free passage next year. He concluded by saying that hitherto they had paid their way, but that they now required further assistance, as they found that they could not manage fifty boys without extending their present building.

Mr. Witts, in seconding the foregoing resolution, said that, about six years ago, Mr. Goodwin and himself were walking along the lanes in St. Giles', when they saw 15 or 20 boys, from 13 to 19 years old, idling about and using shocking language, and that then the design of this institution first entered their heads. He passed through the same parts that day, and did not see one boy idling there. This was satisfactory, but their success was not quite complete. At present they only gave boys their dinner; they boarded them, but they did not lodge them. But there were cases in which reformation was impossible, unless boys were removed from their parents; in which the "home influence" was too strong for them to strive against. He did not anticipate lodging the boys on a large scale, but he hoped they should be able to lodge a few of the extreme cases. He had, for instance, in his mind's eye the case of a boy whom he had known for seven years, and had been trying to reform, but without success. He got him to attend the National School, and he would behave there well for a week, and then break out again as bad as ever. He then got him to the Industrial School, from which he had been expelled two or three times; and at last it was found impossible to do anything with him, and yet for some days he would be as good as possible. Still he believed that boy might be reclaimed, but not without greater machinery than they had at present. It was for extreme cases like that that he was anxious to establish the dormitory system. He had recently visited Industrial Schools at Aberdeen, Perth, and Edinburgh, and there they had asked him how it was possible to reclaim boys without lodging them. In Scotland, the boys were much younger; they left off at 13 years old there, the very age at which they began at Cambridge. The prison returns showed that the most difficult age to deal with boys was from 13 to 18. He concluded by recommending the Industrial School as an institution in which they were endeavouring to educate the hand as well as the heart, training up lads to be good workmen and good Christians, that they might be "not slothful in business, fervent in spirit, serving the Lord."

It appears needless to add anything to what is stated in the foregoing account, and in the extracts which we gave on a former occasion from the First Annual Report, in order to recommend such institutions as the Cambridge Industrial School as the best remedy yet devised for one of the most notorious evils of our times. To those who may still entertain any doubts we would repeat Mr. Goodwin's challenge: "Go and look at the school yourselves, and see if a great moral work is not going on." We will only again express the satisfaction it will afford us if we are enabled, through our Journal, to give additional publicity to the principles and objects of such an institution; and we shall be happy if its supporters can favour us with any observations that may tend yet further to illustrate its system, and thus to promote its general adoption.

ON TEACHING ETYMOLOGY IN ELEMENTARY SCHOOLS.

Etymology is now pretty generally taught as a distinct branch of instruction in elementary schools; we mean etymology as signifying a knowledge of the origin and derivation of words, and not as denoting the branch of grammar which treats of the inflexions and modifications of the parts of speech. This subject was foremost among those that were introduced into our schools when the first impulses were given to the recent improvements in the state of elementary instruction in this country. Considerable importance was then attached to it by the friends of education, who were instrumental in promoting the teaching of it in schools; and, since that time, the feeling in favour of its being taught to children has been continually increasing among teachers and managers, and also among Her Majesty's Inspectors.

Accordingly, in almost every spelling-book and grammar now published, and in one or two of the reading-books, we find long lists of Latin and Greek, and even Saxon roots. Etymological Manuals and Guides, entirely devoted to the subject, have sprung up in abundance, and there are also one or two Etymological Spelling-books.*

We believe that the compiler of the Edinburgh Sessional School-books was the first to draw attention to etymology as a branch of school instruction. In the preface to his "Etymological Guide" he gives the following account of its introduction into the Edinburgh Sessional School:—

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* Among the grammars are M'Culloch's, Sullivan's, Allen and Cornwell's, (in which the Greek roots are printed in Greek as well as English characters,) and that of the Irish Series of School-books. Latham, in his "Elementary English Grammar, for the Use of Schools," even goes further, and introduces a good deal of Comparative Philology. In some of the "Guides" there are not merely Saxon, Latin, and Greek roots, but also French roots, Spanish roots, Italian roots, Arabic roots, and Hebrew roots.

"Etymology not only holds out an object of curious and interesting research to the antiquary, but an acquaintance with it to a certain extent is absolutely essential to all, in order to a right understanding and use of their own language. Its utility, however, is seldom sufficiently valued; those who possess this attainment being often but little aware of the advantage which they thence derive; and those who possess it not, being as little aware of the real cause of the embarrassment which its defect occasions. They who, from their earliest years, through an acquaintance with the dead languages, have been in possession of a highly useful key to their own, can hardly imagine the inconvenience to which the mere English reader is exposed, on whom no pains have been bestowed to compensate for the defect under which he labours. His embarrassment is to a certain degree felt and every day feelingly acknowledged by ladies and others, even in the upper walks of life, ignorant of the learned tongues. But by these it is by no means felt in its full extent. To *them*, words, of which they may be unacquainted with the origin and full force, are still, from their frequent use in the circles in which they move, practically familiar; which, on the other hand, sadly perplex the lower classes in their vain attempts to spell out the meaning of every sermon which they hear, and even of books and tracts which are written designedly for their perusal and edification. It was not until the compiler of these sheets brought himself into close contact with the humbler grades of society, that he was led to form any due estimate of the disadvantage, in this respect, to which they were exposed. Then, however, he perceived, that if these were to be taught to read at all, far more pains ought to be taken than hitherto had been done, to render reading to them a profitable attainment. Along, therefore, with other explanatory instructions which were afforded to the pupils in the Edinburgh Sessional School, he became desirous to give them such useful etymological knowledge as might be acquired without an acquaintance with those languages which had furnished so many roots for our own. He accordingly made the attempt, the success of which far surpassed his own expectations. As he advanced, he found the obstacles, which he had expected to experience from the pupil's ignorance of the peculiar forms and inflexions of the roots in their original tongues, shrink into nothing. He soon perceived that, without any parade of Latin, it was easy to teach a pupil, in any rank of life, that the syllable *con*, in his own language, very frequently signified *together*; that *re* signified *again* or *back*; *ex*, *out*; *pre*, *before*; and that *omni*, in such words as *omnipotent*, *omniscient*, *omnipresent*, *omnivorous*, signified *all*; though the pupil all the while remained ignorant of the original form of the word or its inflection *omnis*, *omnis*, *omne*. The success which attended this attempt having attracted attention, soon led to an extensive adoption of the method in other seminaries in different parts of the country."

It is now high time to inquire with what results this subject has been taught in our schools. Upwards of fifteen years have elapsed since this its first introduction, and we have therefore had sufficient time to enable us to form a correct judgment upon its merits as a branch of popular instruction. We already begin to see symptoms of a wavering faith in its efficacy, and, if we are not mistaken, the tide of opinion, which has hitherto borne it along so steadily, will ere long turn.

In the first place, it is necessary to observe, that the method of teaching it which was at the outset followed by the compiler of the Edinburgh Sessional School-books, and subsequently adopted by other schoolmasters, has been universally abandoned. The reason is, that it does not supply the pupil with definite forms for the roots. The same root occurs in so great a variety of forms in different words, that it is impossible to seize upon any particular collocation of letters as representing it in all of them. Take, for instance, the Latin root, *duco, ductum,* to lead. Among many others, we have the following dissimilar looking words derived from it—*dux, duke, duchess, ducal, conduce, ductile, conduct, conduit.* The only part of the root which is common to all of these derivatives is *du ;* so that, according to this method, the pupil must be told that *du* means to lead, and then he will apply his knowledge to the explanation of such words as *due, duly, duel, duplicate, dubious, endue,* and many others, which do not belong to the same stock. At any rate, much ambiguity and confusion will necessarily arise, especially where, as in the above case, some of the derivates have come to us through the French. The more they have been corrupted in passing through that language, the greater will be the difficulty of pointing out their connection with others from the same root that have come to us directly from the Latin, or have suffered little alteration. Thus, for example, it would be almost impossible to show a boy that the two words *indomitable* and *daunt* have a common origin, without explaining the successive changes which the latter has undergone.

The method that has been generally adopted, instead of this, is that of teaching the exact forms of the roots, with their principal inflections, and requiring the pupils to construct from these, with the aid of prefixes and affixes, the English words in which they occur. This method is recommended by the Commissioners of National Education in Ireland. In the preface to their " Fourth Book of Lessons," the following directions are given :—

> "In hearing the Latin and Greek roots, teachers will be careful to examine their pupils on the formation of English words from them, by joining prefixes, affixes, and other words, and they will also cause them to give, in addition to the examples in the book, as many English words formed from the same root as they can recollect. The object of this exercise is to accustom young persons to habits of combination and analysis, as well as to give them a command of expressions in their own language. When the teacher is examining on the Reading Lesson, he will make his pupil point out all the words of which he has learned the Latin and Greek roots, explain them according to their derivation, and show how they are formed."

It is also recommended by Sullivan, in his " Attempt to simplify English Grammar ;" by Morrison, in " The Pupil's Guide to English Etymology ;" by Allen and Cornwell, in their " English School Grammar ;" and by Christie, in his " Constructive Etymological Spelling-book." In fact, it appears to be the only feasible one, if the subject is to be taught systematically in elementary schools.

That, however, is the question which we have now to consider. It is obvious, that to teach the etymology of even the most common and useful of our 60,000 English words requires a considerable acquaintance with the vocabularies of, at least, four languages which enter into the composition of our own. The greatest number of words which any one of the " Guides " comprises, is about 8000, or less than a seventh part of the whole number ; so that, if the teacher's knowledge do not extend beyond the " Guide," he will constantly run the risk of being puzzled by his scholars, who are sure to ask him for the derivation of words not included in it. This is more especially the case with pupil-teachers, whose knowledge cannot be expected to reach so far as the master's, and whom the scholars are sometimes glad of an opportunity to embarrass. Etymology is not a subject which admits of a progressive arrangement, like mathematics or physical science; and accordingly, if a person profess to teach it systematically, he is immediately supposed to know the whole, although he may really know but a very small part. He may have no wish to pretend to a greater acquaintance with the subject than he actually possesses; but when, perhaps out of their very admiration for his attainments, his pupils have unconsciously placed him in this false position, it is hard for him to be obliged to abate this feeling on their part by confessing his ignorance. The fact is, that a man cannot teach English etymology, thoroughly, unless he is prepared with the derivation of almost every compound word in the language. To qualify him for this, he must necessarily have an acquaintance with more than the mere vocabularies of the four languages above alluded to: he must know something of their inflections and usages, of their grammar, in fact. At the very least, he must possess a competent knowledge of Latin, from which we derive so large a proportion of our compound words. This is insistéd on by Mr. Trench, in his lectures to the students of the Winchester Training School on the Study of Words, which we have noticed in another part of the Journal. We extract the following passage from Lecture V.:—

> "You all here are made acquainted, I believe, with a good deal more than the first rudiments of the Latin tongue. Every one, who can at all appreciate what your future work will be, must rejoice that it is so; indeed, it is hard to understand how you could be otherwise fitted and accomplished for the work which you have before you. It is conceivable, in languages like the Greek and the German, which for all practical purposes may be considered rounded and complete in themselves, which contain all the resources for discovering the origin and meaning of their words in their own bosom, or so nearly so, that the few exceptions need not be taken into account: it is conceivable, in such languages, that a thorough knowledge of his own tongue may be attained by one who remains ignorant of any other, and that he may be able to impart to others this same knowledge which he himself possesses. In fact, the Greek, who certainly understood his own language thoroughly, never did extend his knowledge beyond it. But it is different with English. Would we follow up its words, not to their ultimate sources, but only a step or two, it carries us at once beyond itself and to a foreign soil, and mainly to the Latin. This being the case, he who has not some acquaintance with Latin can only explain a vast number of words loosely and at hazard; he has some general sense or impression of what they intend, of the ideas which they represent, but nothing certain. He stands on no solid ground; he does not feel able to plant himself securely as at a middle point, from which, as from a common centre, all its different meanings diverge."

The absurdities committed by teachers who do not possess sufficient acquaintance with languages are ludicrous beyond everything. The facetious etymologies with which some persons have endeavoured to cast ridicule upon the labours of philologists are nothing in comparison. The derivation of *fox* from *alopex* (*alopex, lopex, opex, pex, pax, pox, fox,*) may now pass for grave matter of fact, without exciting even a smile of incredulity. We will mention but one single instance out of many that are constantly occurring. The other day, one of Her Majesty's Inspectors visited a certain girls' school in the ordinary course of his duties. Our readers must imagine all the preliminaries of an official inspection, in the way of an assembled gallery of attentive children, the presence of a more numerous than either intelligent or sceptical committee, the position of the awe-stricken mistress, and lastly the entrance of the Inspector.

The lesson was about *canvass*, and began as follows :—

Mistress. Now, children, we are going to have a lesson on a very useful article. I hold a piece in my hand. Can you tell me what it is?

Girls. Canvass.

Mistress. Yes, canvass. But before we proceed, some one will tell me the meaning of *canvass*,—will tell me the etymology of the word.

A dead silence denotes ignorance.

Mistress. Why, have I not often told you that *con* means together, and *verto*, to turn? Well, then, *canvass* means something turned together, so as to make a kind of cloth.

The Inspector felt considerable difficulty on the occasion, not knowing what course to pursue. If he did not stop the mistress, he would be sanctioning a gross mistake. If he stopped her, the Committee, astonished at the profundity of her knowledge, would consider him to be exceeding the limits of his province; he would be branded with "officious, meddle-making Government Inspection."

We have no doubt that Her Majesty's Inspectors are very often placed in a similar difficulty at public examinations, and that they are edified by much new and startling information upon the subject of English etymology.

There is another disadvantage which has reference to the pupils. Not to say anything of the pedantry which the practice of repeating roots from the learned tongues engenders in their minds, we cannot help thinking that the time given to these exercises might be much more agreeably and profitably employed.

It is true, that, in the hands of some teachers, the subject may be made interesting for a time; but the interest soon ceases, for the same process has to be gone through with each of the roots, namely, that of joining with them the several prefixes and affixes to form derivative words. It has also been sought to diminish the irksomeness of the study by causing the pupils to construct sentences upon the words as they are formed, and by teaching the etymology in connection with spelling; but, in the former case, the pupils are made to apply words which they have never heard or seen, and in the latter, they are taught etymology before they are at all prepared for it. All exercises, in fact, on mere words, are but as the dry bones in the Valley of Vision to children, especially when they do not clearly understand their meaning, which they cannot well be expected to do until they have met with them in their proper connection, either in written or spoken language.

In the two or three hours a week, which, as appears from the time-tables published in the Minutes of the Committee of Council, are devoted to this subject in the Training Schools, lessons might with much more advantage, we conceive, be given in the rudiments of Latin, or in French. Such knowledge would be of some service to the students, and the acquirement of it would afford their minds a real discipline. Even as a preparation for teaching etymology, this instruction would be far more valuable to them than that which they at present receive, as they would then, at least, have something definite to guide them. We would especially recommend the teaching of French however, for several reasons. Few of the students remain long enough at the Training Schools to acquire much knowledge of Latin, and French is a language which may be learnt in a comparatively short time. Besides this, it is of more practical use than Latin, because it opens up the valuable literature of a living language, and because our intercourse with the French is becoming every day more frequent. The experience of the Great Exhibition ought to have taught us the necessity of giving more attention to the language of our nearest neighbours.

On the whole, we think that the disadvantages we have endeavoured to point out are sufficiently great to constitute real objections to the elevation of etymology to a distinct department of instruction in elementary schools. At the same time, we do not deny that it may be taught incidentally with considerable effect. This, it appears to us, is the preferable plan, as regards both the teacher and the pupils. The teacher may, without any general knowledge of etymology, be able to impart much information upon the origin of particular words, and the successive changes which they have undergone in form and meaning; and, to the pupils, a few words traced in this way are far more instructive and interesting than a whole heap of dry roots. The present and conventional signification of many words is so much at variance with their derivation, that, unless these changes are minutely explained, an acquaintance with their original acceptation is really of very little use; but it is precisely out of such changes that the most valuable lessons are often to be drawn, as they record corresponding processes of human thought. Such explanations are seldom given in the regular etymological lesson, because the words are there treated apart from their application; but, by many teachers, they are very successfully introduced into the reading lesson, where they are calculated to throw light upon the usage of the words to which they relate. This is the "study of words" which Mr. Trench recommends in his interesting little volume from which we have quoted. It is the only kind of etymology which will go any way towards enabling us to realise the truth of Coleridge's exclamation:—"How awful is the power of words!—fearful often in their consequences when merely felt, not understood; but most awful when both felt and understood."

Correspondence.

PROTECTION OF EDUCATION FOR THE MIDDLE CLASSES.

Sir,—The utmost pains are taken to ensure soundness in the education of the children of the poor. Trained teachers are secured for them, and inspectors, who take more or less care that the duties which are professed shall be performed. The middle classes, it is presumed, can take care of themselves, and so perhaps they might, were not the present generation at the tail (we hope) of a bad system. The fact is, that very few parents even in the higher ranks of life are able to test the education of their children, partly perhaps from forgetfulness and disuse, but far more frequently because they have been themselves but indifferently educated. Many of them would acknowledge this very willingly, at the same time sincerely regretting that they are obliged to depend almost entirely on the schoolmaster's word as to the progress and information of their children. Now every good master in the kingdom knows full well, that of the boys sent to him from average schools, not above one third are in any case well informed on those subjects in which previous teachers have professed to instruct them, when the time spent ought to have sufficed to render the instruction sound, with good discipline, conscientious efforts, and acquaintance with the subjects on the part of former masters. We say this, in spite of the number of youths who, every year, mount their stools as tolerably satisfactory clerks in merchants' counting-houses; or who with a year's cramming at a preparatory establishment may pass muster at Addiscombe or Croydon. For the former of these purposes very little more knowledge is required, to begin with, than is now demanded as the right of the poorest child in the kingdom, and any parent who is content with this is content with very little; he has probably paid for a great deal more.

In this day of foundations and commissions, I have often thought that it would be of no small benefit to the middle classes if a board of nine or ten responsible men of acknowledged qualification could be appointed, and kept constantly sitting (each having his day's turn of freedom), for the purpose of examining, on sound and searching, but liberal principles, those boys whom their parents might wish to subject to an impartial trial. Such a board might become, in point of expense, and that, I have no doubt, very shortly, a self-supporting one, as parents really solicitous about their children's progress would not object to pay a moderate fee for the examination. As the benefit accruing became appreciated, such an institution might be extended, by means of branches, almost indefinitely; the appointment of examiners being vested—say, by Government or by the Bishops—in distinguished and trustworthy men. Each parent might prescribe the subjects on which he might more particularly wish to ascertain the qualifications of his son; and, if he chose, might have the examination limited to one or more of these. I have mentioned the Bishops really far less from a wish to make at all a church question of the matter, than because, on looking round, I do not see any other body of men having an equal opportunity or equally well qualified, on the whole, to make selection of examiners.

There would of course be difficulties; but why should such an idea be considered chimerical? Many plans, which have at first appeared far more so, have on trial been found practicable. The object is a most important one. What can be more so than the sound and sincere education of the middle classes, upon whose heels the lower classes, with their guaranteed instruction, may be soon found to be treading? The present hit-or-miss way of choosing schools is acquiesced in as an inevitable evil, and hundreds of those, who are busying themselves about the education of the poor, feel that they are obliged themselves, most completely, to take their chance for the instruction of their own families, thinking, however, that, if they send their boys to an apparently flourishing school, they cannot do much amiss. Were some such plan adopted as that which I have been tempted to suggest, it would tend to check a great deal of imposture, and prevent infinite disappointment. Sanguine and well meaning, but whimsical, speculative, schoolmasters would be taught that they could not go on dabbling with an endless multitude of subjects, or making out infinitely varied bills of intellectual fare to tempt parents, without being brought to book for it. Parents would be taught that it is better to get something, than to hope for everything; they would no longer be enticed by the proffer of a lax indulgent discipline; for where the master found his reputation really at stake he could no longer afford to humour either parents or children. It would tend also to accomplish another important object; namely, the more general appropriation of distinct schools for distinct objects, each school nevertheless admitting in its scheme those branches of study which are at all hands allowed to be absolutely necessary.

Two things are of course implied in the plan proposed:—

I. That the examiner should be furnished with a correct account of the boy's age, of the school at which he has been prepared, and the length of time which has been professedly devoted to the subject or subjects on which he offers himself for examination.

II. That there should be no exclusiveness, either with regard to the grammars and other elementary books, or the mode and form of previous instruction; as the substance of knowledge can be easily tested, without reference to particular books or systems.

There need be no fear of partiality—the work of examination is so laborious, and the pleasure of finding a thoroughly well-prepared examinee so great, that the examiner is only too glad to give credit where it is really due.

Your obedient servant,

B.

P.S.—Let me mention, in connection with this subject, that my own plan (and I heartily recommend it to other schoolmasters) was, in those cases where the parents who brought me their sons were men of education, to request them to allow me to ask a few questions in their presence. I was thus often enabled to detect and point out, in a very short time, extreme want of soundness in the previous instruction. Thus I often occasioned great mortification; but I thought this far better than to become responsible afterwards, in any way, for deficiencies not attributable to neglect on my part, and which I perhaps might not have time allowed me to remedy.

UTILITARIAN VIEWS ON EDUCATION.

We like to view the subject of Education, not only prospectively, but retrospectively; to canvass the influences which have led to a desire of change, and of extension, as well as to watch deviations from the old school routine, as they display themselves practically. Amongst the writers who have expressed dissatisfaction with the past in Educational matters, we may reckon William and Robert Chambers, whilst, at the same time, none perhaps have contributed so largely, both to raise and gratify curiosity on varied subjects, at once to instruct and entertain. We desire fully to acknowledge this debt, before we allow ourselves to say anything disparaging. Our present remarks have reference to a work which has been some time published—" A Tour (it may almost be called an educational tour) in Holland and Belgium," by William Chambers.

Our perusal of this very interesting book was quite accidental, certainly not with any view of censure or criticism; but we could not help observing the inconsiderate manner in which the author falls foul of some of our old school ways, and the tone of needless, and even careless vituperation in which he indulges. It may serve as a hint to our readers to watch carefully the opinions on education jerked out, as it were, from time to time, as opportunity offers, by writers of this class.

In page 16 we find :—

> "In none of the foregoing seminaries which I visited, nor in the Dutch Schools generally, *is the practice of monitorial teaching pursued. Setting boys to instruct boys is an absurdity which finds no countenance in Holland.*"

In page 28, in the chapter on Haarlem, we read with surprise :—

> "The schools in Mr. Prinsen's house appear only to exist as model institutions for the special training and exercise of the young schoolmasrers. The individuals under his care are usually lads who have shown peculiar tact *when appointed to act as monitors.* * * *Mr. Prinsen is director of all the schools in Haarlem and its vicinity.*"

Whether the monitorial system be good or no, this style of complaint, and then of self-contradiction, is pettifogging, we may almost say, unprincipled.

Again, in the same chapter we have the following side-blow, and a most ill-aimed one it is, at old school discipline :—

> "I observed in this school for the first time that the children are allowed, for the space of one hour in the day, to make drawings of figures in nature or art on their slates. * * As I walked amidst the rows of little Dutch boys and girls, and witnessed the pleasure they experienced when I smiled an approval of their labours, I could not help comparing what I saw with my own unhappy school days, when the drawing of a figure on a slate was visited with a punishment suitable to a high moral transgression."

Surely Mr. Chambers ought to have the sense to see the difference between an hour's regular practice in drawing, and the delineation of cows on a slate, which ought to be covered with sums, an offence for which, we will engage to say, that the schoolmaster did no more than rap his knuckles. Beneath one of Sir Joshua Reynolds's early performances of this kind, his father wrote, with some anger, "Done by Joshua out of pure idleness." As this specimen of his talent was probably executed at an improper time, the old gentleman was perfectly right—Sir Joshua had the power of making all his studies, especially his classical studies, subservient, finally, to his art, and his common sense was such, that he would have agreed with his father, rather than with Mr. Chambers. There is a time for all things: let a drawing lesson be a drawing lesson; but do not let us have each boy consulting his individual genius at his private discretion. Count Algarotti, in his celebrated essay, suggests that, as Achilles,

> When by his mother sent away,
> Amidst the Thracian girls to play,

showed by his choice of arms at once his sex, and his prevailing passion, so boys might be turned into a school-room, and, according as they made seizure of book, pen, or pencil, their instructors might observe their prevailing taste, and encourage it: but we fancy even his charity would scarcely have extended so far as to allow them to chop and change their pursuits at the discretion of the moment.

But neither in school, nor out of school, does our mode of proceeding appear to satisfy Mr. Chambers. In the same spirit of captious contrast is the following:—

> "Habits of cleanliness are strictly enforced at all the Dutch schools, and in this respect they are far in advance of our unruly seminaries, from which the children too frequently rush like a drove of cattle, and behave themselves out of doors as if all that they had learnt within went for nothing."

In spite of our merciless severity to children for scribbling on their slates, it appears that they can leave the school-room doors laughing and shouting merrily; and a very good thing too. Many and pleasant are the descriptions which our poets have given us of such scenes and sounds: nor should we like to see a set of children coming from their finished tasks with the austere orderliness which characterizes the departure of a congregation of the Society of Friends from the meeting-house. Away with such sickly stuff! We regret the premature phlegm of these Dutch children, if indeed their extreme demureness is not overdrawn for the sake of making an invidious comparison. We might attribute it, indeed, to philosophic melancholy, if the author's inquiries at Utrecht had been answered in the affirmative.

> "I inquired if the pupils were taught such branches as animal physiology, astronomy, geology, chemistry, hydrostatics, optics, or, what is not less important, mental philosophy; the answer in each case was, No, no, nothing of the kind."

We do not wonder at the impatience of the triple negative to these inquiries. It was Coleridge, we believe, who said, "We must have courage to be ignorant of some things." Which of the articles enumerated in his list would Mr. Chambers have had the courage to forego, as of minor importance?

When men of such general intelligence, and apparently so little practical experience, write in this way, can we wonder that many, in and out of Parliament, can be found, who, themselves knowing nothing thoroughly, quarrel with our schools and universities because they do not teach everything—superficially.

Notwithstanding our censures, we recommend the purchase of this work, (which is published in a very cheap form), both for its general interest, and more especially because it contains some important information with respect to the actual working of that system of education in which religious, is detached from secular instruction. Amidst all the speaking and writing on this subject, we scarcely remember having seen any reference made to the case of Holland, where the experiment appears to have been tried for some time; Mr. Chambers, however, writes as a partisan, and his opinions need further corroboration.

SKETCH OF A BIBLE LESSON.

THE MIRACULOUS DRAUGHT OF FISHES. ST. LUKE V. 1—11.

HEADS OF THE LESSON.

1. The meanings of the principal words and phrases.
2. The chief points to be illustrated.
3. The application, or the practical lessons.

I.

Pressed upon him — standing by — prayed him — thrust out— launch out—a draught— nevertheless—partners—beckoned — from henceforth, &c.

Pressed upon him, crowded him.
Standing by, drawn up on the shore.
Prayed him, asked him ; requested him.
Thrust out, push the boat from the shore.
Launch out, row the boat further out into deep water.
A draught, the quantity of fish caught in a net at one time.
Nevertheless, though this has been the case.
Partners, those that laboured with them ; those who had a share of what was caught.
Beckoned, made signs.
From henceforth, from this time.

II.

(*a*) The people crowd around Christ—(*b*) the Lake of Gennesaret— (c) he enters a ship and teaches the people—(*d*) the command to Simon, and the answer—(*e*) The net in the sea, and the result.

(*a*) After going over all Galilee, we read that Christ went to his home, or the place where he was accustomed to live. *Who knows the name of this place? Capernaum.* Well, this town is called "his own city;" because he resided here more frequently than anywhere else. The disciples also had returned to their homes, and to their callings or occupations. *What was their occupation? They were fishers.*

One day our Saviour leaves Capernaum; he passes through the city, and directs his steps to the borders of the lake. Many persons follow him; the numbers gradually increase; and by the time the shore of the sea is reached they have swelled to a mighty multitude. They press him; they crowd around him, so that he has a difficulty in moving. And why did they thus follow, and press, and crowd? To hear the word of God: to hear One speak whose words were full of wisdom, "who spake as never man spake."

Examination.

Where is the lesson taken from? Give the title of the lesson. To what place is Christ said to have gone? What is this city called in reference to Christ? Why so? Where was Capernaum? How were the disciples employed whilst Christ lived here? What happened on the day he left his home? What do you mean by pressed upon him? Why did they do this?

(*b*) The lake by which he stood is known by various names. It is called the Sea of Tiberias, the Sea of Chinnereth, the Lake of Gennesaret. This is a beautiful piece of water; it is surrounded by hills, and through its centre flows the river Jordan. Many boats, no doubt, at this time were on its surface, carrying goods and people from the one side to the other.* Here and there you might have seen pieces of cork or wood floating on the water, and, if you had looked very attentively, you might have perceived that to these were fastened large nets. These nets were made of twine, and their use was to catch the fish, which were found in great abundance in this inland lake or sea.

Examination.

By what names is this lake known? Where is this lake? Why is it called a sea? What waters flow through it? What is the Jordan? What may we suppose in reference to the lake at this time? What is a net? How are nets kept from sinking? &c.

(*c*) When Christ came to the side of the sea he beheld two little ships or boats drawn up upon the beach; or, as the Bible says, "standing by the lake." There were no persons in them; their owners had just left them; but, if you look to one side of these little vessels, you will perceive strong, powerful men very busily engaged. These are the owners of the vessels. Now, see what they are doing. They are cleaning and washing their nets, mending them where they are broken, so that they may be in a fit state to cast into the sea when the fishermen require them.

Into one of these ships did the Saviour enter, because the people pressed upon him. They were anxious to hear him speak; and, as Christ never allowed an opportunity of doing good to pass, he prayed Simon, or Peter, to thrust or push his boat a little from the land. This he did that all might hear him. He sits down, as was the custom; the mighty hum of human voices is stilled; every eye is turned upon the Son of man; and every ear drinks in the draughts of heavenly wisdom. The discourse is ended; slowly the multitudes disperse, and now and then you may see some one turn to take another look of Him who was so meek and mild, so full of compassion, and who spake as one having authority.

Examination.†

(*d*) When the multitudes were dispersing, our Saviour turns to Peter, the owner of the boat, and requests him to "launch out into the deep;" that is, to row the boat away from the shore into the deep water, and to let down the net into the sea. This Peter might have refused; for lately he had met with no success: but, no! listen to his words; "Master, we have toiled all the night, and have taken nothing; nevertheless, at thy word, I will let down the net."

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* Josephus tells us there were 230 boats on this lake, each attended by four or five men.

† Question before proceeding to the next head.

For hours had these fishermen toiled upon the lake: they had pulled up their nets in one place and let them down in another; and this had they been doing all the night; and yet, on every occasion, they had met with no success. Worn out, and perhaps dispirited, they had made for shore early in the morning, and were washing their nets at the time Christ appeared. But no sooner does He give the command to Peter than the net is put in its proper place; the vessel is rowed out into the deep, and the net gradually sinks into the sea.

Examination.

(*e*) The command is given to take up the net; they begin to draw it towards them, and at the first pull they feel that they have been successful. But, as it comes nearer, the weight increases; and at last the net snaps or breaks here and there, because it is not strong enough to support the immense multitude of fishes which it has enclosed. Nay, they were obliged to get help. They made signs or beckoned to their partners, the owners of the other boat, to come and assist them. The net at last is emptied; the boats are filled, so much so that they began to sink; and, on beholding such a miracle as this, the disciples were filled, as well they might be, with wonder and amazement. But Peter "fell down at Jesus' knees," and feeling how unworthy he was to be in the presence of so high and holy a Being, says, "Depart from me: for I am a sinful man, O Lord."

But Christ calms their fears with tenderness and mildness, and declares, that from henceforth they shall catch men; that is, they shall be his apostles and disciples, the ministers of his gospel, whose business shall be to win men to the truth, that they may be saved. "And when they had brought their ships to land, they forsook all and followed him."

Examination.

III.

1. We should be anxious to hear the word of God (v. 1).
2. We should obey the commands of God (v. 5).
3. The *faith* of Peter (v. 5).
4. That Jesus is almighty (v. 6).
5. Humility (v. 8).
6. We should be willing to give up all for Christ's sake (v. 11).
7. We should always be ready to assist our brethren (v. 7).

W. M'L.

ON QUESTIONING.

No. III.

Words, figures, and facts are the primary elements in which the pupil's thoughts are formed and exercised; laws and principles are left to occupy his riper judgment, and to form the basis of opinions and convictions. Much of the business of the school is necessarily mechanical, but little exercises the memory, and less the reasoning powers. Even where the mathematics are professedly read, to direct and engage the understanding, equations may be satisfied by formulas, without any reference to first principles, and demonstrations may be repeated without a single effort of the mind. That mode of questioning can alone aid in expanding the intellect which brings the pupil to a reflective pause; for though smartness in the scholar is not undesirable, it is sometimes apt to foster superficiality.

The rage for catechism and dialogue, which many years ago infected school literature, arose from the almost universal neglect of oral questioning in schools. Until lately, the absurdity of the scholar's committing to memory both the question and answer was not only tolerated but commanded, though it ought to be evident to every one that the very object aimed at is defeated thereby. It is a favourable symptom of progress in teaching that this style of conveying instruction is fast disappearing from our school-books. As all questions are problems, the ideas contained negatively in the interrogatives being the data, and the answers the solutions, the judgment is more fitly exercised by those questions in which the answer is a deduction from the proposition; a class of questions is thus formed which may be called inferential. For this reason, questions in mental arithmetic, and particularly those questions in proportion where the ratio of the first and second terms is integral, afford an excellent exercise to the reasoning powers. There are few branches of study to which this mode of questioning may not be applied, but it is not advisable to apply it to subjects which do not admit of inferential questioning. Here, as indeed in every other point of questioning, much depends on the skill of the catechist in observing the proper mean between a simplicity which falls below the capacity of the pupil, and an abstruseness which goes beyond it.

In speaking of the necessity of a correct mode of questioning we cannot overlook the importance of reversing, at times, the position of the examiner and the examined, by inviting the pupils to suggest for an answer any questions upon the subject in hand. A distant and magisterial authority may thus be agreeably changed into a familiarity, which still commands respect and obedience.

W. T. Y.

ON READING.

Good reading is a rare attainment in our schools. *Impressive* reading superadds to this some degree of adaptation of the tone of voice to the character of the subject, and of the style. Instead of it, we meet with a lifeless, drawling, monotonous style, by which the sense of the author is obscured, lost, or perverted. In such cases reading is a mechanical not an intellectual process. We can scarcely call this an attainment. An ability to read to this extent can be of little benefit to a pupil. It will not induce him, after he has left school, to read for amusement or instruction. Before he will do this reading must have ceased to be a task. He must have acquired the power of reading with fluency and intelligence. If he does acquire this power, the benefit, great though it be to himself as a means of intellectual advancement, will not be exhausted upon himself, but will in many cases extend to his parents. "It is of great moment that as many as possible among the poor should be able to read aloud, so as to be well understood and listened to with pleasure. It tends to make home more attractive, and to relieve the weariness of the sick bed; to increase the poor man's comforts and supports; to civilize and christianize him." When laid on a bed of sickness, the poor will sometimes listen to their own children reading "the words of consolation," when the tones of a stranger's voice would be unwelcome. We have known instances of this ourselves.

Archbishop Whately, in his Rhetoric, says, "The *object* of correct reading is to convey to the hearers, through the medium of the ear, what is conveyed to the reader by the eye; to put him in the same situation with him who has the book before him; to exhibit to them, in short, by the voice, not only each word, but also all the stops, paragraphs, italic characters, notes of interrogation, &c., which his sight presents to him. His voice seems to indicate to them, 'thus and thus it is written in the book or manuscript before me.'"

Every teacher is aware that to teach a pupil to read correctly and impressively is no easy task. One reason of this is, that it is the result of a combination of subordinate attainments in a greater degree perhaps than other branches of elementary knowledge.

W. R.

Notices of Books.

ON THE STUDY OF WORDS: FIVE LECTURES ADDRESSED TO THE PUPILS AT THE DIOCESAN TRAINING SCHOOL, WINCHESTER. BY RICHARD CHENEVIX TRENCH, B.D., VICAR OF ITCHENSTOKE; EXAMINING CHAPLAIN TO THE LORD BISHOP OF OXFORD; AND PROFESSOR OF DIVINITY, KING'S COLLEGE, LONDON. 12mo. pp. 148. (London: *John W. Parker and Son.*)

THE following extract from the "Introductory Lecture," will best explain the kind of study which Mr. Trench proposes:—

"There are few who would not readily acknowledge that in worthy books is laid up and hoarded the greater part of the treasures of wisdom and knowledge which the world has accumulated; and that chiefly by aid of these they are handed down from one generation to another. My purpose in the present, and in some succeeding lectures, which, by the kindness of your Principal, I shall have the opportunity of addressing to you here, is to press on you something different from this; namely, that not in books only, which all acknowledge, nor yet in connected oral discourse, but often also in words contemplated each one apart from others and by itself, there are boundless stores of moral and historic truth, and no less of passion and imagination, laid up, lessons of infinite worth which we may derive from them, if only our attention is awakened to their existence. I wish to show you, though with teaching such as you enjoy the matter will not be new to you, how well it will repay you to study the words which you are in the habit of using or of meeting, be they such as relate to highest spiritual things, or our common words of the shop and the market, and all the familiar intercourse of life. It will indeed repay you far better than you can readily believe; I am sure, at least, that for many a young man his first discovery of the fact that words are living powers, has been like the dropping of scales from his eyes, like the acquiring of another sense, or the introduction into a new world; he is never able to cease wondering at the moral marvels that surround him on every side, and ever reveal themselves more and more to his gaze."

In five lectures, of course, Mr. Trench is only able to show generally the kind of instruction that may be gained from this study; it would require the labour of a life to elucidate the derivation of even a small part of the 60,000 words which compose our language. He has illustrated his remarks, however, by about 200 instances of instructive etymologies, which he has for the most part investigated in a very able manner.

The "Introductory Lecture" is devoted to a general explanation of the subject. In each of the succeeding lectures, it is looked upon from a particular point of view. Lecture II. is "On the Morality in Words." Mr. Trench here shows that man has indelibly stamped the impress of his fallen nature upon many of the words which he uses, and that the abundance of such words in all languages is only too true a witness to the extent of his moral degradation; that, according to the esteem or contempt in which, at different times, particular offices and qualities have been held, so the words denoting them have been gradually ennobled, or have degenerated in their significance; that there is a witness for the truth in most words, but in some, unfortunately, a pernicious glozing-over of falsehood; and that the vocabulary of any language is, therefore, a faithful indication of the moral condition of the nation speaking that language. Lecture III. is "On the History in Words;" and, after touching on the original unity in language, shows that the great changes in the political, social, and religious state of mankind have left their traces in particular words; that many are borrowed from customs which have long passed away; that many are derived from historical personages and occurrences, and others from the names of places where the things were first made or employed; that an ignorance of the origin of a word often gives rise to false spelling; that several words at present in use record old errors and superstitions long abandoned; and, that the scruples of the Society of Friends about the retention of such words are unreasonable. Lecture IV. is "On the Distinction of Words," and shows the manner in which synonymes have arisen and multiplied, their importance in the expression of nice distinctions, the value of etymology in assisting us to distinguish between them, and the influence which an acquaintance with their application has upon our style of writing, and even upon our morality. The concluding lecture, "On the Schoolmaster's Use of Words," suggests some ways in which the study may be applied to practical ends, and made to bear upon teaching. We gave an extract from this Lecture, on the "Losses by Phonetic Spelling," in the last number of the Journal.

The first thing that strikes us, in reading this book, is that, with reference to the class of men for whom the lectures were written and published, the author has exaggerated the importance of his subject.

There is no doubt that the investigation of the etymology of words is a most profitable study, if rightly pursued; but it requires a more than ordinary acquaintance with the languages from which our tongue is derived, for without this, we must be continually liable to commit the most absurd inaccuracies ourselves, and to perpetuate erroneous etymologies which we must take on trust from others, who are, perhaps, not better able than ourselves to judge of their correctness. It is from the attempts of incompetent persons to trace learned etymologies that so much discredit has been thrown upon the subject. If a man with the philological attainments of Horne Tooke could not avoid falling into occasional mistakes, how can any one with no such attainments expect to escape the commission of the most gross blunders? We hope to see the day when English schoolmasters shall have received a good training in languages as a regular part of their education; but, at present, we certainly think their time may be devoted to many things that will yield more profit, both to themselves and their pupils, than the Study of Words. We do not deny that a knowledge of common etymologies in teaching is very good to keep up the interest of the children; we would only warn schoolmasters against making "a study" of what they should more properly treat as an amusement. It appears that the students at the Winchester Training School are made acquainted with a good deal more than the first rudiments of Latin; but, although this would enable them the better to understand and appreciate Mr. Trench's Lectures, it would not render them capable of undertaking the study for themselves, except to a very limited extent. Even the author himself, as it appears to us, has not been able to avoid being misled by specious etymologies, and, in some cases, we think he has brought a great deal more out of the word than it ever contained. He has adopted the current derivation of *atone* from *at-one*, which we can only regard as a curious instance of forced etymology. The pronunciation contradicts the assumption; but a much better proof that it is erroneous is, that the word was formerly written *attone,* and meant simply to agree or accord, from which it would appear that it is only the more correct form of *attune.* We are not aware, either, that there is any warrant for supposing that the word *tribulation* was at any time employed to convey the idea of purification or separation which Mr. Trench attributes to it. It should be remembered that the act of threshing is not that by which the corn is separated from the chaff. The word would rather seem to have been adopted as implying by analogy the bruising, crushing, or wounding of man's spirit by adversity, persecution, or distress.

With these reservations, we cordially recommend the book to the attention of our readers. It contains a large amount of valuable and interesting information, and may be read with profit by any one. The Lecture on the Synonymes is particularly useful; and that on the History in Words particularly interesting; and either would in itself repay the cost of the book. Although we do not advise teachers to attempt to carry out etymological inquiries to any extent for themselves, still there can be no doubt as to the value of accurate information obtained as the results of such inquiries; and as the greater part of Mr. Trench's derivations may be relied upon, the book will prove particularly useful to them in this point of view. Besides, there are a great number of words which only require a little reflection to enable us to perceive their connection with other words; and Mr. Trench's remarks under this head will set teachers on the right track for discovering such connections. The book is further written in so simple and elegant a style, and many of the reflections are so beautiful and interesting, that we would gladly see it in the hands of all engaged in the business of education. We are sure that it will make them feel a fresh interest in their work. It will lead them to regard the vehicle of teaching in a new and more serious light than they have been accustomed to do, and thus bring them to "weigh their words," and, as Mr. Trench observes, discover a deeper meaning in the Saviour's declaration—"For every idle word that men shall speak, they shall give account thereof in the day of judgment."

LOGIC FOR THE MILLION, A FAMILIAR EXPOSITION OF THE ART OF REASONING. BY A FELLOW OF THE ROYAL SOCIETY. 12mo. 380 pp. (*Longman and Co.*)

SPEAKING of the intellectual part of the education of young people, a writer, for whose opinions we have the highest respect, and to whom we have heretofore been indebted, thus briefly sketches the outline of the process that ought to be followed :—"There is the absolute knowledge to be acquired; and the ways of acquiring knowledge to be gained. The latter, of course, form the most important branch. They can in some measure be taught. Give children little to do; make much of its being accurately done. This will give accuracy. Insist upon speed in learning, with careful reference to the original powers of the pupil. This speed gives the habit of concentrating attention, one of the most valuable of mental habits. Then cultivate logic. Logic is not the hard matter that is fancied. A young person, especially after a little geometrical training, may soon be taught to perceive where a fallacy exists, and whether an argument is well sustained. It is not, however, sufficient for him to be able to examine sharply, and to pull to pieces. He must learn how to build. This is done by method."

Agreeing with the recommendations contained in this passage, we beg to call the attention of our readers to the work at the head of this notice, which fully and entirely fills up a hiatus that has long been felt in our educational literature. Except what can be gathered from the words, "By a Fellow of the Royal Society," the publication is anonymous; the writer remarking in his preface—"Though not unknown as an author, I am not known as a writer on logic; and I am unwilling that the present work should receive either advantage or disadvantage from any reputation I may have acquired by other publications." We wish he had determined otherwise. A work of this kind would have derived advantage from a well-known name on the title-page, and his readers, too, from knowing with whom they had to do. Another drawback, we think, it has in the title. The attribute "for the million," has become of late so intimately associated with quack medicines and books of mere amusement, or even worse, that very many well-meaning people will be apt to class "Logic for the Million" with Comic Grammars, and Comic Blackstones, and the thousand and one things that are advertised of sovereign use to all that use them. And yet this is, in fact, a serious book on a serious subject, well-written, well-thought, and well-arranged, and if it be carefully read can scarcely fail to be well-digested. The title is no misnomer. The author has brought a subject hard only in appearance—an appearance which, up to this time, has been kept up by overlaying treatises on logic with an unnecessary number of technical terms and lifeless forms—into the common stock; and has presented us with a work, which we, at least, have found to be most fascinating and instructive. The author himself seems to have been well aware what an amount of prejudice he had to remove, and how unpopular a subject he had been employing himself upon. He says:—

> "Let no one commence the reading of this book under the impression that he is about to engage in an exercise that is dry, toilsome, or difficult. He will not find it so. Here are no intricate theories in which the reader may become bewildered—no knotty questions by which he may be embarrassed—no hard words which he cannot understand—no ill-natured censure of preceding writers to awaken his resentment, and no gloomy reflections to render him either sulky or morose. The road before him is a wide and easy path, in which he may walk pleasantly along, gathering amusement and instruction by the way; and now and then he will be invited to repose that he may look around him and indulge in feelings of useful merriment."

The work is divided into five parts. The first part is called the Introduction to Reasoning, and is intended to show us the name and nature of the art; the subjects on which it is employed; its utility; the dispositions and knowledge required for its successful use. As its *utility* is by far the most important preliminary point to be established, we can scarcely do better than quote the author's own words:—

> "All men and women reason from their infancy. 'Tis as natural for them to do so as it is for dogs to bark or birds to sing. And when they reason about things they understand, they generally reason well. But sometimes they reason ill; and 'tis the business of the art of reasoning to teach them how to reason well. Such an art cannot be otherwise than useful. It must be useful to know how to do *well* anything we have to do every day and several times a day. And when we recollect that much of our health, our success in business, our moral and religious character, our present and future happiness, our reputation in the world, and our usefulness to others, will depend upon the soundness of our reasonings, the art will appear to us of very high importance."

Again:—

> "The art of reasoning is useful by enabling us to defend our own principles against the attacks of opponents, and to give them currency in the world. You may have to defend your opinions against the attacks of those who hold contrary opinions. You must not hesitate to do this when the cause of truth or justice requires it. When your own character or that of your friends, or your political or religious principles are assailed, you are bound to make resistance, and it will be useful to be able to do it well. The political and religious differences that exist among mankind are by no means to be deplored as unmingled evils. They serve to awaken the nobler feelings of the soul, and to maintain attention to principles that might otherwise be forgotten. They stimulate the intellectual powers, and impart an energy to all the faculties and to all the operations of the mind. To engage in controversy does not imply that you are to vituperate the person, misrepresent the opinions, or calumniate the character of your opponents. You will be less liable to fall into these practices if you understand the art of reasoning. You will then have no occasion for these ignoble weapons."

The second and third parts of the work are devoted to explaining the principles on which reasoning depends; namely, the relation that subsists between a Subject and its Attribute, a Whole and its Parts, Genus and Species, and the various relations between Cause and Effect; and we are shown also, in a manner as novel as it is instructive, how reasoning is carried on in Parables, by Analogy, in Fables and Proverbs, and by the help of written documents generally. In the fourth part are discussed the forms, and in the fifth the applications of Logic, in clear, simple, and excellent language, with a variety of illustration and quotation, showing that the author is a thinking man, as well as a well-read scholar. He has taken, as he informs us, most of his quotations "from the Bible, from books on political economy, and from newspapers; others from books referring to the ordinary affairs of life—chiefly to health, education, and conduct."

If the reader be contemplative, he will find food for thought as well as encouragement for more active exertion, in paragraphs such as the following, which is replete with large experience, and expressed in forcible language:—

> "It is easy to show that there is a positive gratification resulting from the study of the sciences. If it be a pleasure to gratify curiosity—to know what we are ignorant of—to have our feelings of wonder called forth, how pure a delight of this very kind does natural science hold out to its students! Recollect some of the extraordinary discoveries of mechanical philosophy. Observe the extraordinary truths which optical science discloses. Chemistry is not behind in its wonders; and yet these are trifling when compared to the prodigies which astronomy opens to our view; the enormous masses of the heavenly bodies, their immense distances, their countless numbers, and their motions, whose swiftness mocks the uttermost efforts of the imagination. Then, if we raise our view to the structure of the heavens, we are again gratified by tracing accurate, but most unexpected, resemblances. Is it not in the highest degree interesting to find that the power which keeps the earth in its shape, and in its path wheeling 'round the sun, extends over all the other worlds that compose the universe, and gives to each its proper place and motion; that the same power keeps the moon in her path round the earth; that the same power causes the tides upon our earth, and the peculiar form of the earth itself;—and that, after all, it is the same power which makes a stone fall to the ground? To learn these things, and to reflect upon them, produces certain as well as pure gratification."

If instruction of the very highest kind, and on the most important subjects be required, let us listen to the unknown commentator on the Bible. The following would make an excellent lesson to any class:—

> "The word parable is applied in the New Testament to four different kinds of literary compositions. These are tales, comparisons, parables, strictly so called, *i. e.* allegories, and fables.
>
> "A tale differs from a parable, strictly so called, in having no reference beyond itself. The above tale" (that of the rich man) "illustrates the futility and uncertainty of riches, but it has no allegorical meaning. It is not employed as a similitude or comparison to illustrate anything else. The same observation may be applied to the parables, as they are called, of the rich man and Lazarus (Luke xvi. 19); the pharisee and the publican (Luke xviii. 9); the unprofitable servant (Luke xix. 12), and the unfeeling servant (Matt

xviii. 23); which viewed as literary compositions, are, strictly speaking, not parables, but tales.

"A comparison differs from a tale in that it is employed to illustrate something beyond itself. It differs from a parable in that the illustration is confined generally to one point. In the above example (the grain of mustard seed), the comparison between the illustration and the thing illustrated is confined to one quality, that of rapid and extensive increase. There is no general resemblance in other respects between the two things compared. An attempt to discover such resemblances would be ridiculous. To the same class of compositions belong the two foundations (Matt. vii. 24); the leaven hid in the meal (Matt. xiii. 33); the treasure hid in a field (Matt. xiii. 44); the merchant seeking goodly pearls (Matt. xiii. 45); the net cast into the sea (Matt. xiii. 47): the fig-tree (Luke xxi. 29); and several others.

"The parable, strictly so called, is an allegory. It is employed to illustrate something that seems at first to have no connection with it, and the machinery of the composition must correspond with the several parts of the matter to be illustrated. The explanation of the parable of the sower will illustrate this in a very striking manner. To this class of compositions belong the parables of the tares, the day labourers, the nuptial entertainment, the ten virgins, the faithless husbandmen, and several others.

"The fable is a composition designed to illustrate a *proposition*, which is called the *moral* of the fable. It is not necessary that the machinery of the fable should bear any resemblance to any moral process to which the proposition may be applied. Herein it differs from the parable. The machinery of the parable, or allegory, must correspond with the moral processes it is intended to illustrate. The machinery of the fable represents nothing. It is required only that the result shall illustrate a proposition, and this proposition must seem to flow from the plot of the fable. In the fable of the unjust judge (Luke xviii. 1—5), the proposition to be proved or illustrated is the advantage of perseverance in prayer. The same lesson is taught by the fable of the midnight visitor (Luke xi. 5—8)."

In no school would this work be out of place. Independent of its specific object, it would form an excellent class-book: and that boy will have no contemptible knowledge of the things best worth knowing, who shall have assimilated all the information which may be derived from this single volume.

OUTLINES OF PHYSICAL GEOGRAPHY, FOR FAMILIES AND SCHOOLS. BY ROSINA M. ZORNLIN, AUTHOR OF "RECREATIONS IN GEOGRAPHY," &c. &c. 12mo. pp. 128. (London: *John W. Parker and Son.*)

THIS excellent little volume is an abridgment of the first 118 pages of Miss Zornlin's well-known book, "Recreations in Physical Geography." It has not, however, the too common character of abridgments, that of mere curtailment, for by re-writing and condensing the language, the authoress has been able to retain the substance of the original, and even to add three chapters on topics not included in it, namely, on Latitude and Longitude, Geology, and Electricity and Magnetism, and to append some "Exercises for the Examination of Pupils." For its size, we think this the best book that has yet appeared on the subject. The familiar and elegant style in which, like the rest of Miss Zornlin's publications, it is written, will make it highly interesting to children, while the careful arrangement and division of the matter admirably adapt it to the purposes of class teaching.

We would beg leave to suggest to the authoress, that the second and third chapters, which treat of subjects more strictly belonging to mathematical geography, might very properly be omitted in a second edition. In the case of school-books, it is desirable that each should keep close to its peculiar object, and not take too wide a range. The space occupied by these two chapters would be better filled by extending the Geology to other countries besides England. We would also call attention to an error in page 47, in which the Schwarzwald is termed a prolongation of the Alpine System, and the Danube is accordingly said to rise in the Alps. Even the Jura, which intervenes between the Alps and the Schwarzwald, is not properly considered a part of the Alpine System, as there is so distinct a separation between the two ranges.

NOTES AND SKETCHES OF GALLERY OR COLLECTIVE BIBLE LESSONS; WITH NOTES GEOGRAPHICAL AND EXPLANATORY. BY GEORGE HENRY TAYLOR, MASTER OF THE MODEL SCHOOL, AND NORMAL MASTER OF THE NATIONAL SOCIETY'S TRAINING INSTITUTION, BATTERSEA. (London: *Longmans*, 1851.)

We are always ready to welcome an elementary text-book which comes to us fresh from the hands of one actually engaged in the business of teaching; we have then reason to expect that it will prove really useful, its principles and methods having been subjected to the test of experience,—which they could not have been if it had come from the closet of the theorist, who merely looks on from a distance at the practical part of education. On this account we are disposed to bestow upon the work before us a more than ordinary degree of consideration.

Mr. Taylor has chosen a subject in which he will become the competitor of an able writer who has hitherto held undivided sway. Mr. Stow may be considered as the originator of Collective Bible Lessons; and any success that English teachers have had in this department is due, in a great measure, to the example of pupils of his, and to the excellent illustrations of these lessons contained in his "Training System." There is still, however, plenty of work left for a follower, if he will systematize the practical results that have already been attained, and from them deduce the principles upon which such instruction should be based. But this does not seem to be Mr. Taylor's opinion; he proposes to himself a different object. "By the publication of the present little work," says Mr. Taylor, "I seek mainly to accomplish three things. First, To change the style of address now so common and so ineffectual in giving Bible Lessons, and to fix their peculiar character. Second, To present teachers with an example of what ought to be done in preparing Bible Lessons. Third, To assist the teachers of elementary schools in a work so laborious and important as that of 'getting up' Gallery, or Collective, Bible Lessons."

We could find no fault with this purpose, if Mr. Taylor had given us something better than Mr. Stow's method, or even anything as good; but, as it appears to us, his manner of carrying out the objects which he has in view is open to great objections.

We must premise that Mr. Taylor has confined himself exclusively to the Bible Narratives, for the following reasons:—"To appreciate and fully comprehend the glowing imagery of the Bible, a refined taste and cultivated imagination are required; to the teacher, who must 'picture out' this imagery, a skill beyond these acquirements is necessary. Nor do I like that admixture of elementary science which this plan necessarily involves; the proper place for such explanations seems to me to be the Scripture Reading Lessons." We have always thought quite otherwise, and Mr. Stow seems to have thought so too, for he has given half-a-dozen illustrations of Emblems and Single Terms pictured out, and only one of a Narrative so treated.

Mr. Taylor has adopted in his lessons the general outline employed by his experienced predecessor in the Battersea Model School, who is on all hands acknowledged to be the most successful follower of Mr. Stow in this department of teaching; but in the most essential feature, the narrative, he differs widely from both of these gentlemen. Mr. Stow makes a point of "picturing out" the whole narrative, and Mr. M'Leod gives it "in the form of a familiar lecture," both making great use of the ellipsis and of questioning; but Mr. Taylor rejects the ellipsis and questioning in this part of the lesson, and simply relates the facts himself, partly in his own language and partly in the language of Scripture. He says, as Mr. Stow has said before him, that "it is utterly useless to preach to children;" and yet he has adopted a "style of address" certainly not far removed from that which he tells us he seeks to change.

As specimens of Mr. Taylor's "Sketches" we subjoin an extract of a lesson from the Old Testament, and another of a lesson from the New.

CAIN AND ABEL.

"We read that 'Cain talked with Abel his brother.' It may be that he put on the appearance of great kindness, and asked Abel to go with him into the fields, for, presently after, they go out together. As they are going along Cain tries to pick a quarrel with his brother. He speaks of the sacrifice; thinks that God is a respecter of persons, and that judgment is not given according to works. Abel, we may suppose, would answer mildly, and with a firm faith in the justice and mercy of God. This only serves to enrage Cain the more; he can no longer contain himself, and, in a fit of revengeful passion, he takes the life of Abel, his brother. How horrified he must have been when he saw the lifeless corpse of his poor brother stretched upon the grass and dyeing it with blood! Did he think of his father and mother? Did he see them wailing over the dead body of their son? Did he look at himself as the first murderer, and the murderer of his own brother? Did he think of his Maker, who had shortly before so kindly warned him of his conduct? It may be that all these things rushed through his mind, and added to the horror of his situation. It is probable that he now dug a hole and hid the body to prevent discovery."

THE CRUCIFIXION.

"Slowly the procession moves up the hill of Calvary. At last the top is reached, and preparation is made for the crucifixion. A large hole is dug in the ground to receive the cross. The Saviour is stripped naked, laid upon the cross with his arms stretched out—the iron nails are taken and driven through his hands and his feet into the wood of the cross—he is then lifted up—the end of the cross is let fall into the hole—and the horrid work is completed!"

This style of narrative pervades the whole of the "Sketches." We can only say, that the fictitious minutiæ of detail with which Mr. Taylor amplifies the sacred text, are calculated to produce a very questionable effect upon the minds and feelings of children. This is the very plan which the Jesuits adopt with their pupils; and one of the known results of their teaching is, that an exact acquaintance with the events recorded in the Bible becomes an impossibility. Our readers will agree with us, that the above description of the most solemn event in the world's history is, to say the least, extremely painful.

Even, however, if the "Notes and Sketches" were entirely free from objection, we cannot see what would be the use of filling 250 pages with them. The first and second objects would have been attained by the insertion of three or four lessons, instead of which there are thirty from the New and twenty-seven from the Old Testament; and for the third object, the only parts of the work of any use are the "Notes geographical and explanatory," which "have, in many instances, been transcribed literally from good authorities in such matters," whence teachers may obtain them for themselves. By far the greater portion of the space is taken up with the "Sketches," which can serve no purpose but that of sparing teachers the very labour which, if their lessons are to be worth anything, they ought to undertake for themselves, for a good lesson cannot be provided by committing to memory what has been written by another.

Mr. Taylor has added fifteen "Hints to Teachers," most of which are useful; but with regard to two of them we cannot agree with him. In the first of these he says, "Let your lessons be characterized by great unity and simplicity in the matter of them;" and, as "examples in the way of illustration," he adds further on, "Peter's conduct at the betrayal and the trial should form the subjects of separate lessons." This would obviously be defeating the unity of the subject, and departing from the simplicity of the sacred narrative. In the second, he says, "There is one very common practice against which, in the Bible Lesson, I caution you. Is the lesson upon the Pharisee and the Publican? then must the teacher adduce other examples remarkable for pride in the one case, humility in the other. Is the lesson upon the cleansing of the leper? (Mark i.) then must reference be made to Miriam and Gehazi, and others *ad libitum*. Is the lesson upon the miraculous passage of the Red Sea? then must the division of Jordan be spoken of. All this seems specious enough, but it is not more pernicious in practice than false in theory." This practice has, however, the authority of Mr. M'Leod (see Vol. V. No. 9, of this Journal); and Mr. Taylor has not said anything to alter our conviction that it is a useful one; in fact, he says himself, after some disparaging remarks, "The practice in itself is not objectionable, but it should be confined to the Scripture Reading Lessons."

We must observe that there is throughout the volume a dogmatic tone which is not calculated to induce teachers to adopt Mr. Taylor's views, particularly where they differ from those of Mr. Stow and Mr. M'Leod.

THE FAMILY ALMANACK AND EDUCATIONAL REGISTER, FOR 1852. (London: *J. H. Parker.*)

We have received the issue of this very useful almanack too late to do anything more than acknowledge it. It is much more copious and complete than the issue for 1851, and we hope to turn to its mass of statistical information on the subject of education in our next.

SECOND CLASS-BOOK OF PHYSICAL GEOGRAPHY: EMBRACING ORGANIC LIFE, AND THE GEOGRAPHICAL DISTRIBUTION OF PLANTS, ANIMALS, AND MAN. BY WILLIAM RHIND. 12mo. pp. 96. (Edinburgh: *Sutherland and Knox.*)

It is hard to say what is not included by some writers under the head of physical geography. Here is a little book, professing to treat of a branch of it, one half of which is occupied with vegetable and animal physiology. "The first portion of this Class-book," says the author, "treats of the structure and properties of organic bodies, as it is necessary first to know something of the nature of plants and animals—their relations to each other and to the soil and atmosphere—before the laws of their distribution can be properly understood." True, and it is necessary also that the child should be taught to read before he can understand this or any other book; but Mr. Rhind does not think of giving a few preliminary chapters for that purpose. If every class-book were to go over all the preliminary ground before treating of its own more immediate subject, we should have to buy the same matter, in different shapes, over and over again, and a reading book would be the only one that could keep within its own province. As to physical geography, there is nothing in the whole range of natural science which would not serve to elucidate it. It is only by defining the limits of the particular subject, and strictly adhering to them, that an author can hope to produce a really useful class-book.

The fact seems to be that the author wanted to treat of natural science generally, for not only is one half of the book professedly taken up with vegetable and animal physiology, but in the second half there is quite as much that belongs to botany and zoology as to physical geography, properly so called; and geology also occupies a considerable share of the space, all the pictures of animals referring to extinct species. It is quite in accordance with this, when Mr. Rhind observes, "The First and Second Class-books form, together, an elementary system of natural science."

We are also at a loss to make out for what class of pupils the book is intended. In his preface the author states that "there is nothing here introduced but what experience has proved can be readily understood and appreciated by pupils generally," and yet, at the end of his book, he makes the following recommendation:—"The teacher may accustom his pupils to give the Latin, French, English, and German names to objects of natural history, by writing out on a black-board all the names that occur in the lesson for the day. In this way the pupil's acquisition of languages will be extended and kept up, and also his literary progress encouraged, by thus finding his acquirements turned to use." For pupils far enough advanced to be learning three languages besides their own, the book is much too elementary in its character; while, for children, and especially for children in elementary schools, it is not sufficiently simple, either as regards the matter or the style.

On these grounds we regret that we cannot give our approbation to the work as a class-book. At the same time the large amount of information which it contains will render it acceptable as a reading-book to many who have not the means of procuring a separate work on each of the subjects on which it treats. Generally the facts seem to be accurately stated, though we observe errors in it, for instance, where Mr. Rhind makes the Australians and the inhabitants of Madagascar belong to the Malayan race.

JUDGMENT IN THE CASE OF THE KIDDERMINSTER SCHOOL.

Sir G. Turner has recently delivered an important judgment relative to Kidderminster Grammar School, declining to interfere with the scheme of the Master laid down for its management in 1844, with the exception of the exclusion of Dissenters from its benefits, which he reversed, and affirmed an important principle in regard to grammar-school regulations, which he thus laid down:—

"It was said that no boarders ought to be taken by the masters, and that this rule ought to be applied to all schools, the endowments of which afforded a sufficient income for the master without the aid of boarders. In support of this principle he was referred to the decisions of the late Vice-Chancellor of England in the cases of the Tiverton and Manchester schools. The Vice-Chancellor had proceeded on the terms of these endowments, and on what he collected to have been the opinion of Lord Cottenham in the Manchester case. Whether the Vice-Chancellor had rightly construed the endowments before him, or had rightly gathered the opinion of Lord Cottenham, it was not for him to say; but, after examining the cases, he could find no such rule laid down. It was clear, from many cases before Lord Cottenham, that he was averse to the admission of boarders, but he could not find that he had prohibited it. The cases referred to, however, had proceeded on the construction of particular endowments, under particular circumstances, and the present case was one of a different endowment, under different circumstances. The observations of Lord Eldon, in considering whether the master of a grammar school should be allowed to take boarders, in the case of the *Attorney-General* v. *Hartley*, were these:—'In the evidence I find no contradiction to the allegation that children boarding with the inhabitants of Bingley have been admitted, and that obliges me to consider whether, if you destroy the right of the master to take boarders, you can leave untouched the ancient practice with respect to other persons taking boarders. I think it probable, from the evidence, that the boarders were first introduced at an early period of the mastership of Mr. Hudson. What is the effect of the fact of the master not having taken boarders before that time is a question to be considered by and by, but if even up to this time the master had received no boarders, there would be considerable difficulty in determining that for that reason he should not hereafter have them.' The evils apprehended were those arising from the inequality of rank and from the degree of favour with which the boarders might be treated. The latter evil, if it occurred, would be an abuse on which it would be the duty of the trustees to interfere. With regard to the former, inequalities of grade must always exist, and upon this point he might refer to what had been said by Lord Lyndhurst, in the *Attorney-General* v. *Lord Stamford*, speaking of free grammar schools, and of the association of children of parents of different ranks of life:—'There is another consideration also connected with these establishments—that they are the avenues by which the humbler classes, by industry, activity, and intelligence, can force their way into the highest situations of the State, and by furnishing the means of uniting at an early age the upper and lower classes, they tend to bind together by the strongest ties the whole system of society.' Against the necessity or expediency of receiving boarders it was objected the income of the school was sufficient to obtain a competent master; but the question was not whether a competent master could be had, but by what means the services of a superior master might be obtained. It must also be remembered that there was some evidence of a practice having formerly existed of taking boarders; and that after what had taken place boarders could not be excluded during the incumbency of the present master. He was of opinion that the Court ought not to interfere with the scheme on that point."

ON THE STUDY OF ABSTRACT SCIENCE IN CONNECTION WITH INDUSTRIAL EDUCATION.

(*Extracted from the report of Dr. Lyon Playfair's Lecture.*)

The raw material used by industry for the production of useful objects doubtless forms the basis of manufactures, but possesses a fluctuating value in relation to that of the object into which it is converted. In the successful prosecution of manufactures, apart from the influence of mere capital and labour, two elements are involved, each forming a factor which, in a competition of industry, may be made to assume very different values. The first element is the raw material; the second, the skill and knowledge used in adapting it to the purposes for which it is designed. Thus in America cotton is indigenous, and consequently cheap; and fuel, the other raw material employed in its conversion to a textile fabric, is not expensive. In England the same cotton is much dearer, but the fuel may be assumed to be equal in price. The competition between the two countries in respect to calico, resolves itself into the necessity that England, to overcome the disadvantage of the greater cost of the raw material, must infuse a greater amount of skill and knowledge into the processes employed in its adaptation to useful purposes. England has succeeded in doing this, and, consequently, the mills of Manchester may render unproductive the mills of Lowell. But reverse the conditions of the two countries, and a similar result attests the truth of the same principle. Sheffield produces steel, which in large quantity is exported as a raw material to America. The history of that country has created a knowledge of the conditions required for the manufacture of edge tools. The forests were not cleared, or the prairies converted into arable land, without that observing nation understanding the qualities and the requirements of the axe, the adze, and the spade. The knowledge thus attained was applied to the manufacture of edge tools; and commerce returns to England its own steel, but under a new form, and endowed with an excellence, a temper, and a cheapness yet unattained by our artisans. Without this application of greater skill it would have been impossible for America to have competed with the country which furnished the raw material. A nation, if it combine ordinary intelligence with its local advantages of cheap raw material, may long preserve almost a monopoly in special manufactures, and will continue to do so, either until the competing nation has risen so high above her in intelligence as to make this more than an equivalent for the local advantage of the other, or until a greater equalization in the price of the raw material renders a small amount of superiority in the intellectual element of sufficient importance to secure successful competition. But should any great transition of the world take place, and should means arise by which local advantages were levelled, and the raw material confined to one country became readily attainable by all, the difference in its cost being inconsiderable, then the competition in industry must become a competition in intellect; and that nation which most quickly promotes the intellectual development of its artisans, must, by an inevitable law of nature, advance; while the country which neglects its industrial training must as inevitably recede. It requires no mental acumen to perceive that we are rapidly approaching to, if we have not yet arrived at, this period of wonderful transition when nations must speedily acquire the levels due to their different amounts of intellectual development. It is quite true that a superabundance of capital may for a time preserve a country from a quick depression, even should it lapse in its intellectual training; but the support thus given can only be temporary and illusory, for if, by the purchase of foreign talent, the necessary knowledge is infused into home manufactures, this can only have the effect of raising the intellectual element in the foreign country, and thus finally accelerate its success as a competing nation. There never was a time when it was so necessary as now that skill and science should be united for the promotion of the industrial arts.

At former periods of human history local advantages or accidental combinations were the foundation of a nation's prosperity. The time is not distant when it was thought that the possession of mineral fuel indicated a country as the natural manufactory of those necessaries of life which employ machinery in their production, while the existence of large tracts of land, warmed by a genial sun, stamped another nation as essentially agricultural, and employed its population in the labours of the field. Each country fell into a routine of manufacture, and Italy and France produced their silks and shawls with as little thought of competition as England its machinery and calicoes. Science in advancing has created resources unthought of before, and has removed those local barriers which had retarded the progress of industry. Countries are no longer confined in their aspirations by smallness of territory, for this, by the aid of science, enlarges its powers. The country which in its agricultural poverty can support only a scanty and miserable population, expands itself for the reception of increased numbers as the produce of its land augments; and thus knowledge in the improvement of agriculture wins by a bloodless victory vast additional territory to aid in the industrial resources of the nation, for a land with a two-fold increase in agricultural production has, for all practical purposes, unfolded itself to twice its size. Science, in its progress, is improving and simplifying processes of manufacture, while it is opening at the same time a communication between the nations of the earth. The amazing facilities of transport afforded by the introduction of steam, enable a ready interchange of their natural riches, and mere adventitious local advantages, apart from skill and science in their adaptation, become of much less moment than they formerly were. The proof of this is in the fact that the staple manufactures are now carried on in all parts of Europe, and that there is a constantly increasing and active competition of most of the great nations in all the markets of the world. If England still continue in advance it will not be that her coal and iron are plentiful, but because she unites science with practice, and because she enables her discoveries in philosophy to keep pace with her aptitude in applying them. But is it true that England does act thus wisely? and is it true that science does hold in this country its just position in public esteem, or that it is fostered sufficiently to make that progress which it is now doing in other lands? To all such questions a negative reply must be given; for beyond a theoretical recognition of the importance of science in its relations to practice, and the establishment of this museum and college—a very important measure I admit—the State and the public only look to the empirical result, and have not deemed it necessary to foster that knowledge which directly led to it. But England is the only European state which is thus blind to its own interests, and which has not yet thoroughly awakened to the importance of giving an intellectual training to those intrusted with its manufactures. This is proved by the large endowments given by foreign governments for the support of institutions connected with industrial science, and it finds expression in the writings of their thinking men.

Hour after hour might be employed in recording the triumphs of chemistry in its investigations into the play of the organic elements. Looking back no further than the last few years you see how it has thrown open the most hidden processes of animal and vegetable life—how it has taught us to increase and economise the food of man. It is even yet the practice of those who have not followed her discoveries into the wondrous affinities of the few simple organic elements, to depreciate the importance of following their infinite creations. If, however, there were no other result from doing so than the one great achievement of having explained the ingredients in food used to build up the muscular frame and those employed in the support of animal heat, the importance of that discovery would have repaid all the labour of the past century. Almost all the staple manufactures of this country are founded on chemical principles, a knowledge of which is absolutely indispensable for their economical application. In a few educational establishments, and in some of our Universities, the alphabet of chemical science is taught; but it requires an institution such as this, devoted to a special object, to teach how to use that alphabet in reading manufactures. The extension of scientific and technical education is a want of the age. * * * "The great desideratum of the present age," says Liebig, "is practically manifested in the establishment of schools in which the natural sciences occupy the most prominent places in the course of instruction. From these schools a more vigorous generation will come forth, powerful in understanding, qualified to appreciate and to accomplish all that is truly great, and to bring forth fruits of universal usefulness. Through them the resources, the wealth, and the strength of empires will be incalculably increased." Institutions such as this are not substitutes for, but supplements to, the Universities. It is the industrial training which we profess, and everything else is made subsidiary to that object. Not that we do or should forget abstract science as such, because I believe the discoveries in abstract laws are of more real benefit to industry than their immediate applications. The technical man is perhaps of more use to himself and to his time and generation than he who discovers the abstract laws which the former applies to the purposes of industry; but it is the abstract philosopher who benefits all time and confers universal and eternal benefit on society.

After giving numerous examples of the advantages of scientific knowledge to the manufacturer, and of the failures which have continually resulted from the want of it,—Dr. Playfair thus concluded :—

For a long time practice, standing still in the pride of empiricism, and in the ungrateful forgetfulness of what science had done in its development, reared upon its portal the old and vulgar adage: "An ounce of practice is worth a ton of theory." This wretched inscription acted like a Gorgon's head, and turned to stone the aspirations of science. Believe it not; for a grain of theory—if that be an expression for science—will, when planted, like the mustard-seed of Scripture, grow and wax into the greatest of trees. The pressure and difficulties of the age, and the rapid advancement of intellect in continental nations, have been the Perseus to cut off this Medusa's head from the industry of England, and to fix it on the shield of Minerva, who turns to stone such as still believe that science should be ignored by practice, but, reversing that shield, wisely conducts those who would go further under her guidance. It is now rare to find men who openly avow, although they actually entertain a belief in, a necessary antagonism between theory and practice. Theory is, in fact, the rule, and practice its example. Theory is but the attempt to furnish an intelligent explanation of that which is empirically ascertained to be true, and is always useful, even when wrong. Theories are the leaves of the tree of science, drawing nutriment to the parent stem while they last, and by their fall and decay affording the materials for the new leaves which are to succeed. I have now said enough to show you that it is indispensable in this country to have a scientific education in connexion with manufactures, if we wish to outstrip the intellectual competition which now, happily for the world, prevails in all departments of industry. As surely as darkness follows the setting of the sun, so surely will England recede as a manufacturing nation, unless her industrial population become much more conversant with science than they now are.

ANSWERS TO THE MATHEMATICAL QUESTIONS.

QUES. 114.—*Proposed by Mr. O'Clazey, Durham.*

IF a person travel round the earth at the equator, how many square miles of its surface may he see, supposing the earth to be a perfect sphere, 8000 miles in diameter, and the height of the person's eye five feet?

Answered by H. P., Mr. Sothern, Mr. Salter, Mr. Dyer, Prismoid, and Mr. Righton, Jun.

The surface to be found will be very nearly the convex surface of a cylinder, whose girt is the circumference of the earth and height equal to twice the distance seen by the eye of the observer when elevated 5 feet above the earth.

$$\text{Circumference of the earth} = 8000 \times 3{\cdot}1416;$$

and by Tate's "Geo. and Mensuration," page 59,

$$\text{Twice the distance seen by the observer} = 2\sqrt{8000 \times \frac{5}{5280}};$$

$$\therefore \text{Surface seen by the observer} = 8000 \times 3{\cdot}1416 \times 2\sqrt{8000 \times \frac{5}{5280}};$$

$$= 138351 \text{ sq. miles.}$$

QUES. 115.—*Proposed by Prismoid, Tewkesbury.*

To determine an expression for the area of an octagon in terms of the side.

Answered by Mr. Sheppard, Mr. Levy, Mr. Herbert, and W. Thompson.

Here we have, putting a for the side,

$$\text{Area polygon of } n \text{ sides} = \frac{n}{4} \cdot a^2 . \cot \frac{180^\circ}{n},$$

$$\therefore \text{Area polygon of 8 sides} = 2\, a^2 \cot 22\tfrac{1}{2}^\circ$$

$$= 2\, a^2 (1 + \sqrt{2}).$$

QUES. 116.—*Proposed by Mr. Sheppard.*

A wheel 6½ feet diameter is obstructed by a stone 3 inches high. Required the force necessary to surmount this obstacle, supposing the line of traction to pass through the axis at an angle of 30° to the horizon, and the load upon the axis to be 10 cwt.

Answered by Mr. Levy, A. M., Prismoid, Mr. Herbert, and W. Righton.

Here the wheel will turn upon the stone as a fulcrum. Suppose two perpendiculars to be drawn from this point, one (a) to the line of traction, and the other (b) to a vertical line let fall from the axle; then we have by the equality of moments:

$$P \times a = 10 \text{ cwt.} \times b.$$

$$\text{Now } b = \sqrt{(3\tfrac{1}{4})^3 - (3\tfrac{1}{4} - \tfrac{1}{4})^2} = 1\tfrac{1}{4} \text{ feet,}$$

and by trigonometry we find $a = 3{\cdot}22307$ feet;

hence we have $P \times 3{\cdot}22307 = 10 \times 1\tfrac{1}{4}$,

$$\therefore\ P = \frac{10 \times 1\tfrac{1}{4}}{3{\cdot}22307} \text{ cwts.} = \frac{10 \times 112 \times 1\tfrac{1}{4}}{3{\cdot}22307} \text{ lbs.}$$

$= 434{\cdot}36$ lbs., the force required.

LIST OF MATHEMATICAL ANSWERS.

Prismoid, ans. 114, 115, 116; W. H. Levy, Shalbourne, ans. 114, 115, 116; A M., ans. 114, 115, 116; W. Thompson, Chelsea, ans. 114, 116; J. Salter, Durham ans. 114, 115, 116; S. Dyer, Wanstead, ans. 114, 115, 116; J. Rowlatt, Evercreech, ans. 114, 115, 116; J. Sheppard, ans. 114, 115, 116; J. Herbert, Woolton, ans. 114, 115, 116; H. P., Newcastle, ans. 114, 115, 116; T. Sothern, Burtonwood, ans. 114, 115, 116; T. Abbott, ans. 114, 116; W. Righton, Jun., ans. 114, 115, 116; M. N. J., ans. 115; E. Carthew, Roehampton, ans. 114.

NEW QUESTIONS,

TO BE ANSWERED IN OUR NUMBER FOR JANUARY, 1852.

QUES. 117.—*Proposed by A. M.*

At what time between eleven and twelve o'clock will the hour and minute hands of a watch be equidistant from 1?

QUES. 118.—*Proposed by Miss Levy.*

A ship sails from Liverpool, lat. 53° 24′, to New York, lat. 40° 42′, and during the voyage touches the tropic of Cancer. Find the length of the voyage, supposing it to be the shortest possible, and allowing the earth to be a perfect sphere whose circumference is 25,000 miles.

QUES. 119.—*Proposed by J. J. R., Portsmouth.*

The total weight of an engine (including the driving wheels with their cranked axle, which weigh 3 tons,) is 23 tons. If the train be moving at the rate of 60 miles per hour, and the centre of gravity of the driving wheels be displaced 2½ inches during a revolution, the diameters being 5 feet; find whether or not the wheels will have a jump on the rail.

To Correspondents.

E. J. B.'s communication in our next.

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